

VOLUME 3: DETAILED STUDY OF SELECTED NATURAL TERRAIN LANDSLIDES AT CLOUDY HILL

HALCROW CHINA LIMITED

**This report was originally produced in July 2003
as GEO Landslide Study Report No. LSR 6/2003**

CONTENTS

	Page No.
Title Page	183
CONTENTS	184
APPENDIX D: FIELD SHEETS	185
APPENDIX E: DETAILED FIELD SHEETS	253
APPENDIX F: SITE SPECIFIC REGOLITH GUIDE	335
APPENDIX G: LANDSLIDE GEOMORPHOLOGICAL MODELS	347

APPENDIX D
FIELD SHEETS

Landslide Investigation Consultancy Agreement No. CE 2/2000
Landslide Reconnaissance Field Proforma – Cloudy Hill

Explanatory Note

The following information should be read in conjunction with the Landslide Reconnaissance Field Proforma presented in this appendix.

1. SOURCE

Abbreviations:

B. Colluvium	Bouldery Colluvium
F. Colluvium	Fine Colluvium
RS	Residual Soil

Note:

The numbers in the boxes beside each type of material refer to the thickness of that type of material exposed in the main scarp of the failure.

2. LANDSLIDE TYPE

Abbreviation:

SOR	Surface of Rupture
-----	--------------------

3. MATERIAL EXPOSED IN SCARP CHART

Note:

The chart is a graphical representation of the thickness of the various materials exposed in the main scarp (i.e. a graphical representation of the data presented in the SOURCE section of the proforma)

Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

93C

Mapped by	JAT	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835430 E		837183 N	() GPS	(X) Estimated
Date of failure	1993	Evidence	Helicopter trip in July 2001		

SOURCE

Length	24	Width	8	Depth	1.5	Volume	144
B. Colluvium		F. Colluvium	1.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	(X) Below ridgeline	Slope angle
		35.9
		Slope Aspect
		273

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	320	Estimated travel angle	28

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
(X) Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

Very steep, access very difficult (possibly 1993 landslide)

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No. P8090027 Date 09/08/01 (Looking W)



Photo. No. CH00&01 Date 09/07/01 (Looking N)

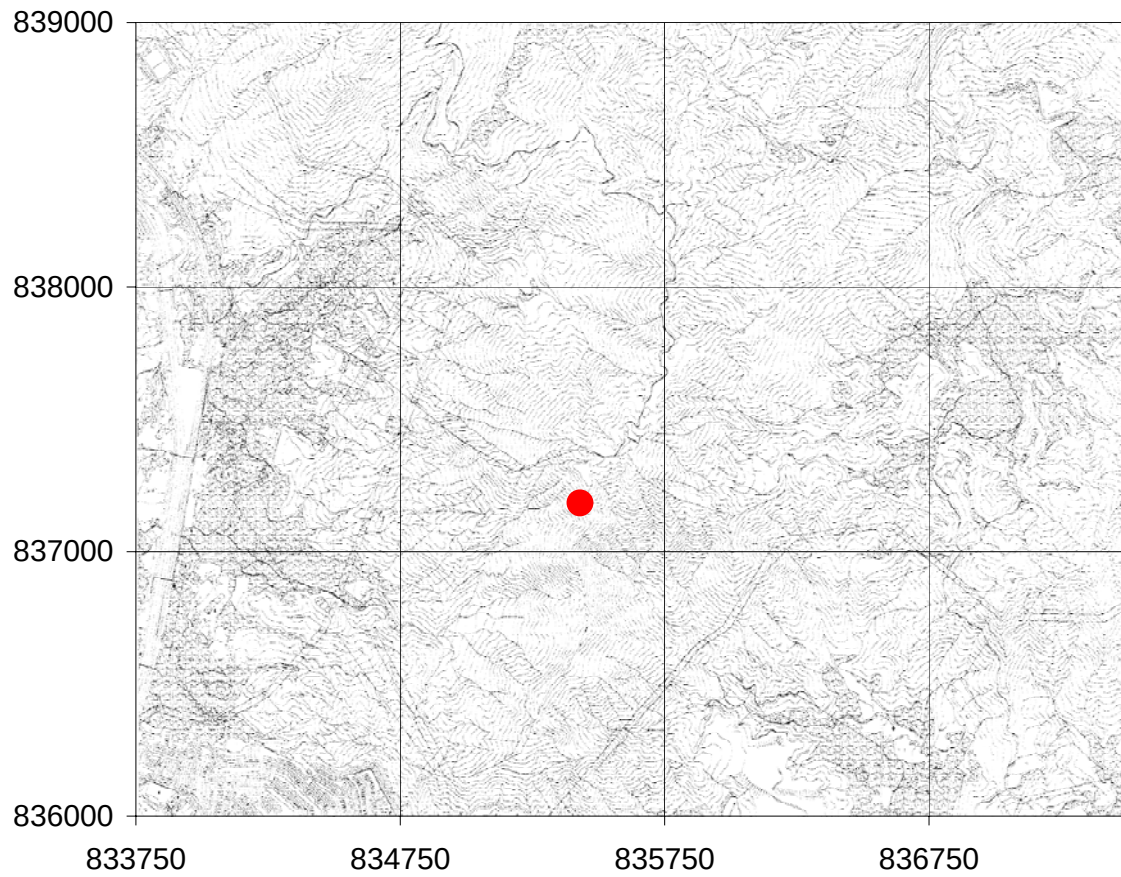


Photo. No. Date / / (Looking)

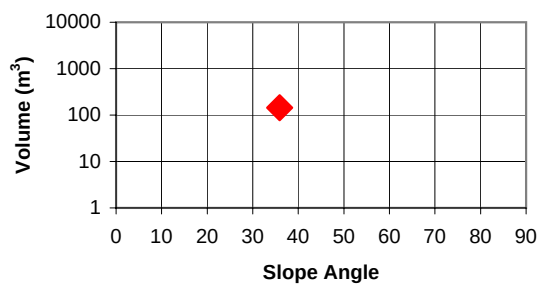
Photo. No. Date / / (Looking)

Landslide Location Plan

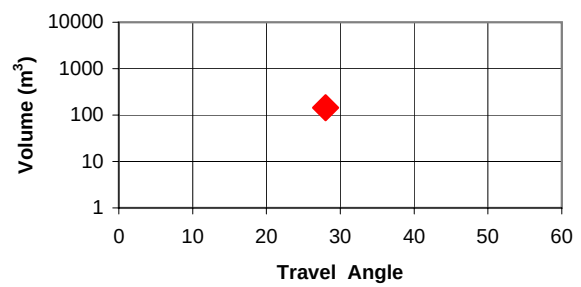
93C



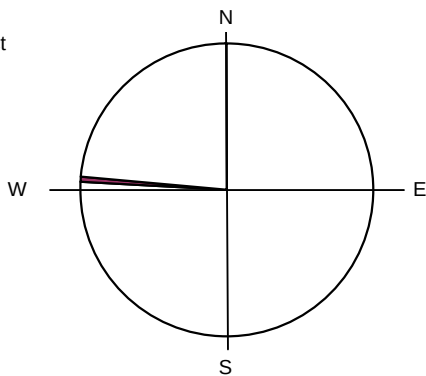
Comparison of Landslide Source Volume and Slope Angle



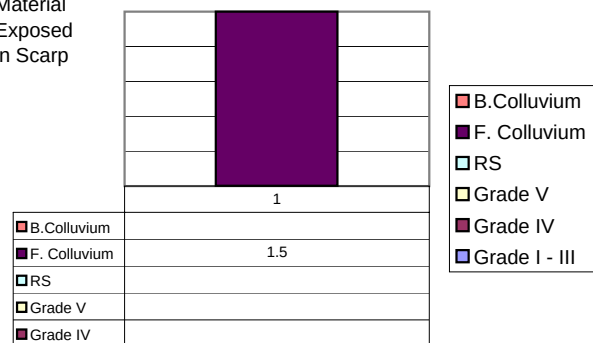
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

99A

Mapped by	JAT	Date	9/7/2001	Weather	Cloudy
Grid Ref.	835303 E		838312 N	() GPS	(X) Estimated
Date of failure	1999	Evidence	Helicopter trip in July 2001		

SOURCE

Length	12	Width	10	Depth	0.5	Volume	30
B. Colluvium		F. Colluvium	1	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		30.8
		Slope Aspect
		200

DEBRIS

(X) Non-channelised	() Channelised	() Not known	() Entrained material
Estimated travel distance	95	Estimated travel angle	33

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

No access due to dense vegetation

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No. CH01QRW Date 9/7/01 (Looking E)

Photo. No. P8220058 Date 22/8/01 (Looking NW)

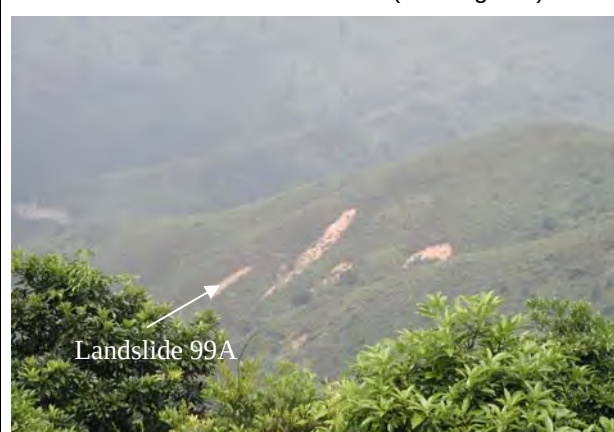
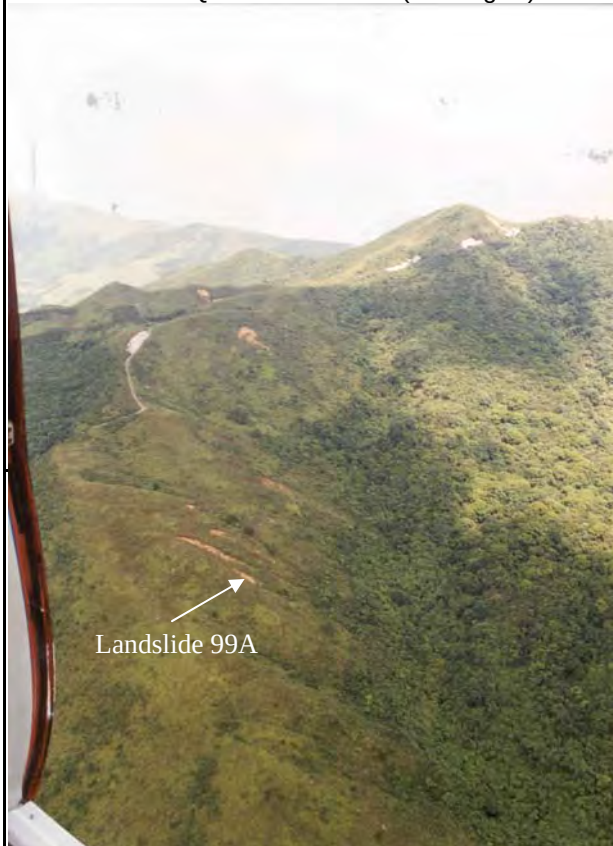
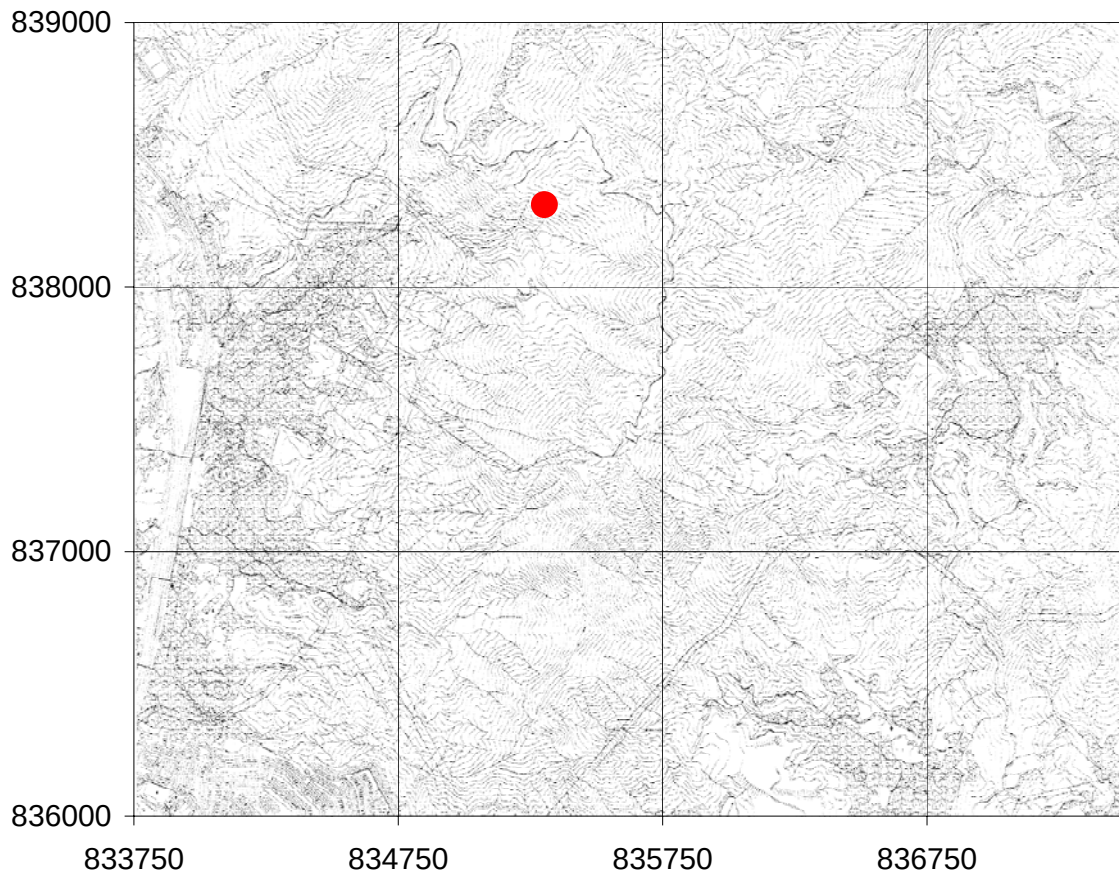


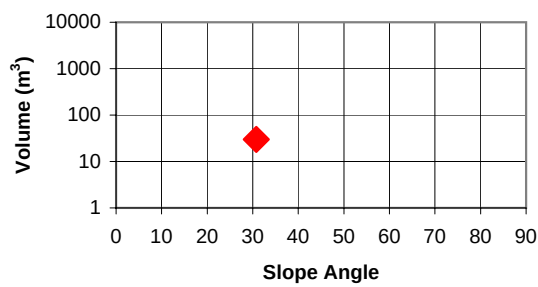
Photo. No. Date / / (Looking)

Landslide Location Plan

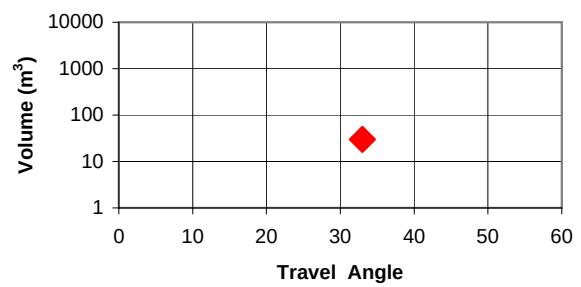
99A



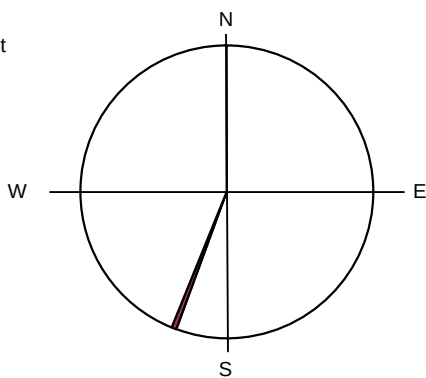
Comparison of Landslide Source Volume and Slope Angle



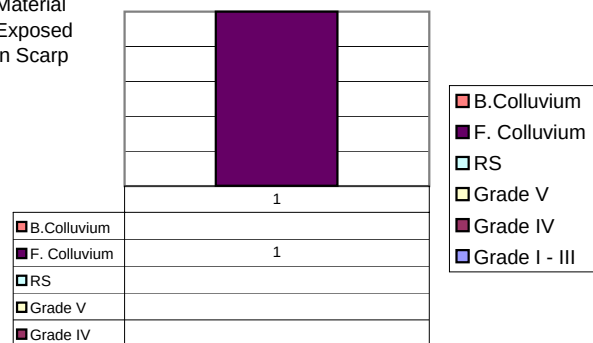
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

00A

Mapped by	JAT/DMD	Date	May-01	Weather	Fine and Sunny
Grid Ref.	835774 E		837172 N	(X) GPS	() Estimated
Date of failure	Apr-00	Evidence	First reported to GEO in April 2000		

SOURCE

Length	15	Width	12.5	Depth	0.8	Volume	75
B. Colluvium		F. Colluvium	0.8	RS		Grade V	0.1
Grade IV	0.1	Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	(X) Below ridgeline	Slope angle
		37
		Slope Aspect
		135

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	105	Estimated travel angle	42

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No.1127-9 Date 27/11/00 (Looking NW)



Photo. No.Landslide A Date 10/5/01 (Looking N)

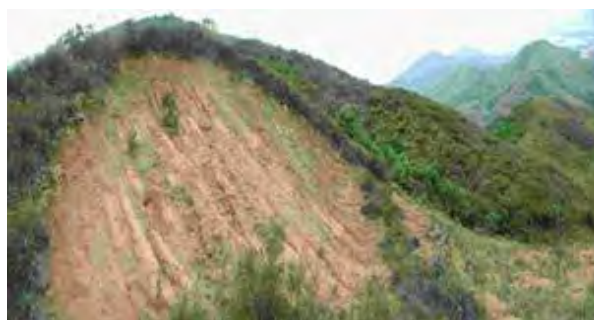
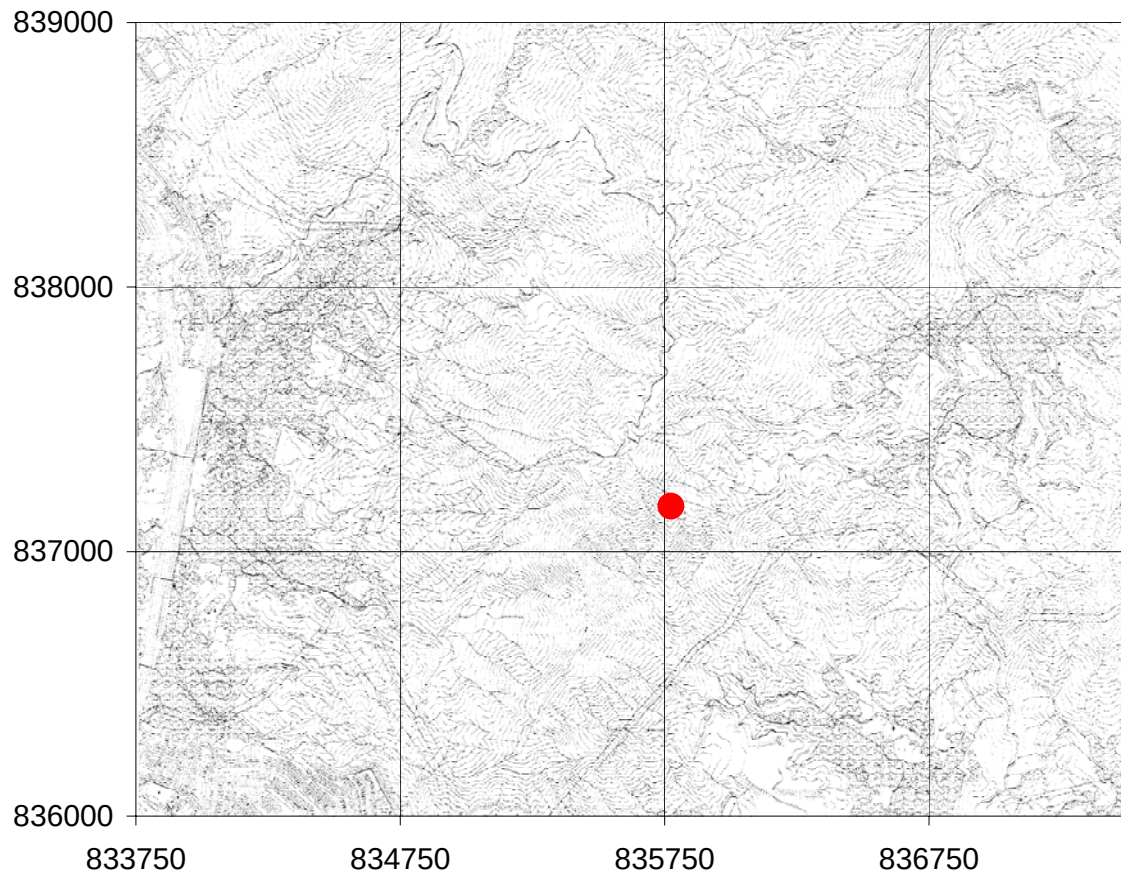


Photo. No. Date / / (Looking)

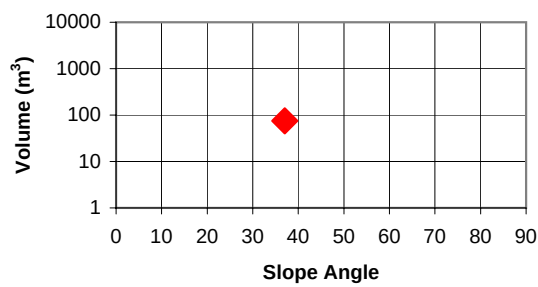
Photo. No. Date / / (Looking)

Landslide Location Plan

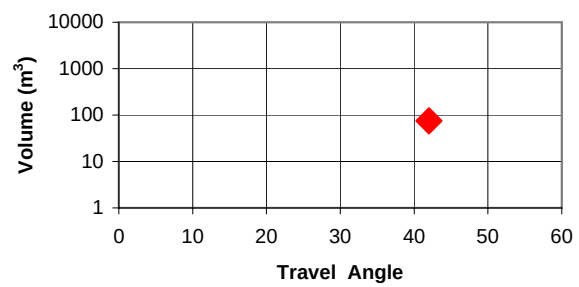
00A



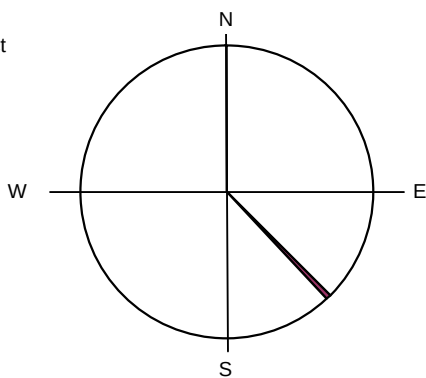
Comparison of Landslide Source Volume and Slope Angle



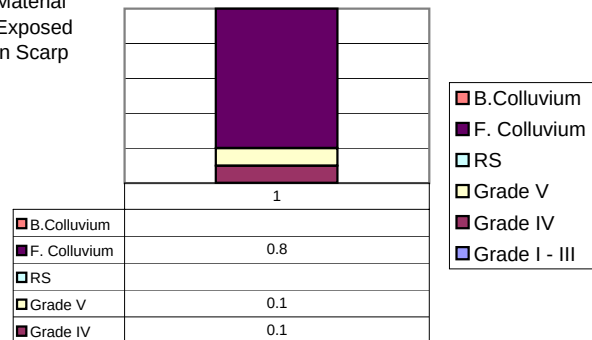
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

00B

Mapped by	DMD/JAT	Date	10-May-01	Weather	Cloudy
Grid Ref.	835735 E		837163 N	(X) GPS	() Estimated
Date of failure	Apr-00	Evidence	First reported to the GEO		

SOURCE

Length	55	Width	25	Depth	0.8	Volume	550
B. Colluvium		F. Colluvium	0.8	RS		Grade V	0.1
Grade IV	0.5	Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		40
		Slope Aspect
		200

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	152	Estimated travel angle	38

LANDSLIDE TYPE

() Soil	() Rock	(X) Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	(X) Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

At about 15 m below the crown of the landslide scar, a 2.5 m high concave break in the slope comprising H - MDT dipping about 80 deg is exposed

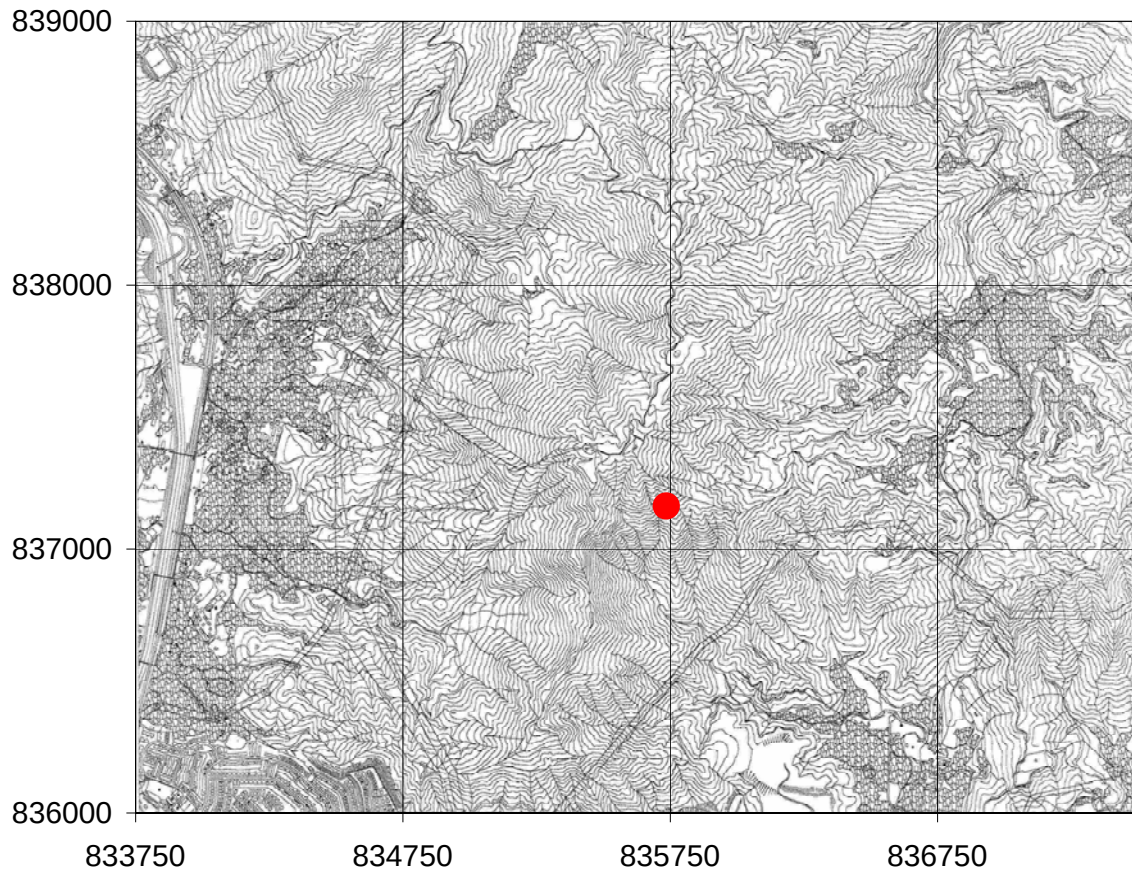
FURTHER STUDY (X) Yes () Possible () No particular interest

Photo. No. CH00&01 Date 09/07/01 (Looking N)	Photo. No. 1127-2 Date 27/11/00 (Looking NE)
	

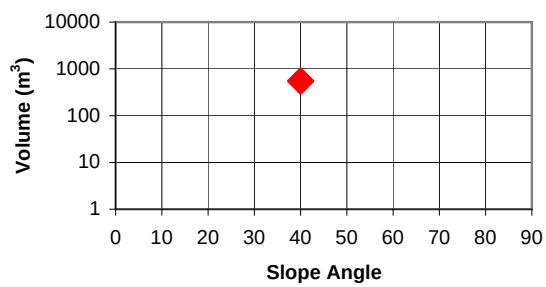
Photo. No. Landslide B Date 10/05/01 (Looking N)	Photo. No. Date / / (Looking)
	

Landslide Location Plan

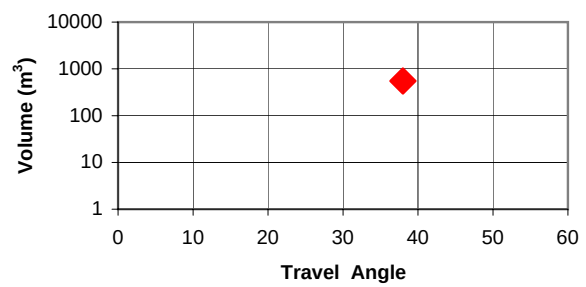
00B



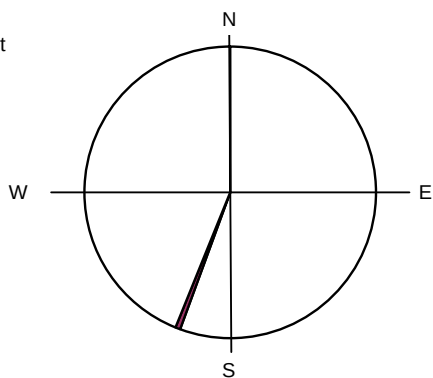
Comparison of Landslide Source Volume and Slope Angle



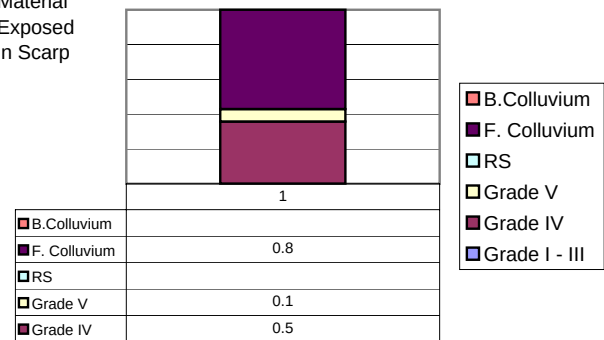
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

00C

Mapped by	JAT	Date	10-May-01	Weather	Cloudy
Grid Ref.	835527 E		837093 N	(X) GPS	() Estimated
Date of failure	Apr-00	Evidence	First reported to the GEO		

SOURCE

Length	18.2	Width	12.5	Depth	1	Volume	114
B. Colluvium		F. Colluvium	1	RS		Grade V	0.1
Grade IV	0.1	Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		32
		Slope Aspect
		144

DEBRIS

() Non-channelised	(X) Channelised	() Not known	(X) Entrained material
Estimated travel distance	250	Estimated travel angle	42

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	(X) Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	(X) Tension cracks (Minor)	() Post failure widening
() Evidence of previous movement	(X) Deterioration of rock mass	() Seepage
() Within scar of relict failure	(X) Infilled joints	(X) Erosion pipes

Notes:

Offset Quartz Veins
Persistent 27/220 sheeting joint ?, crosses diagonally across source

FURTHER STUDY (X) Yes () Possible () No particular interest

Photo. No. CH00C Date 09/07/01 (Looking W)

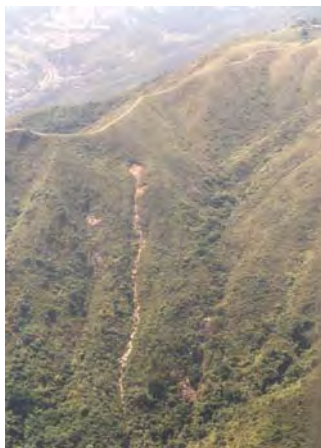


Photo. No. offset qtz Date 10/05/01 (Looking NW)



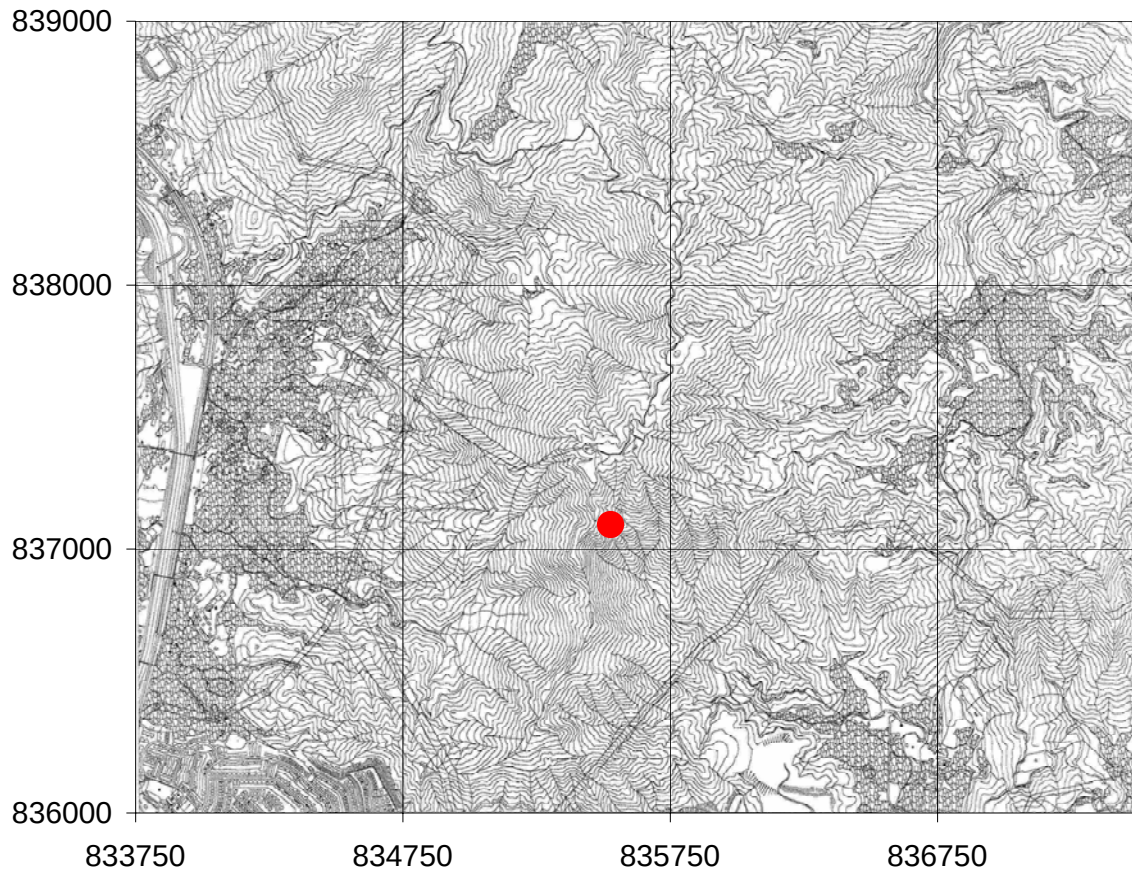
Photo. No. Landslide C Date 10/05/01 (Looking W)

Photo. No. Date / / (Looking)

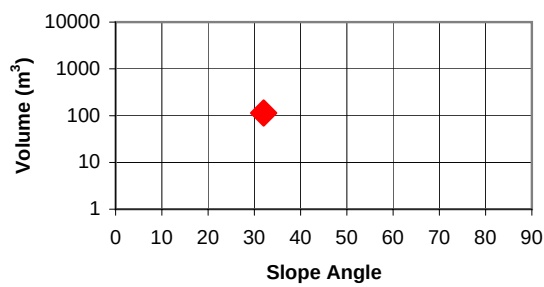


Landslide Location Plan

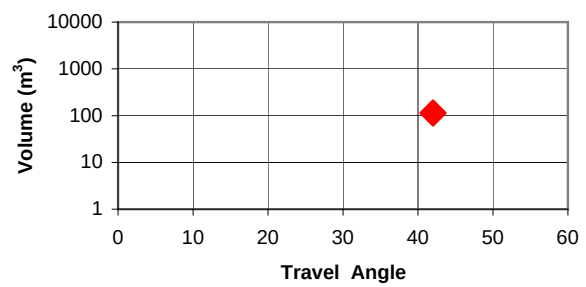
00C



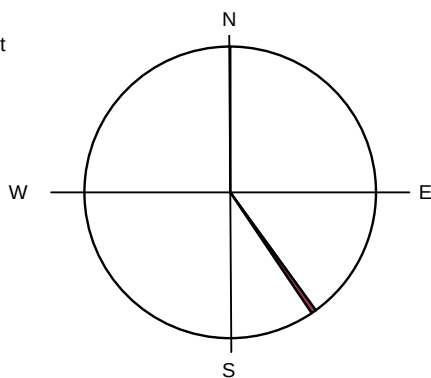
Comparison of Landslide Source Volume and Slope Angle



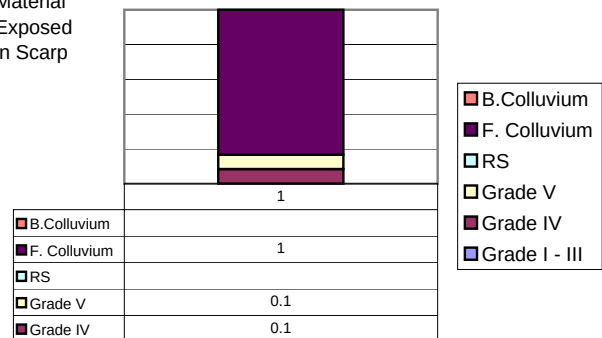
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

00C2

Mapped by	JAT	Date	7-Jul-01	Weather	Cloudy
Grid Ref.	835658 E		838199 N	() GPS	(X) Estimated
Date of failure	2000	Evidence	Helicopter trip		

SOURCE

Length	10	Width	18	Depth	0.8	Volume	90
B. Colluvium	0.2	F. Colluvium	0.6	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		32.3
		Slope Aspect
		255

DEBRIS

(X) Non-channelised	() Channelised	() Not known	() Entrained material
Estimated travel distance	86	Estimated travel angle	33

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

No access due to dense vegetation

FURTHER STUDY () Yes (X) Possible () No particular interest

Photo. No. CHO1R Date 09/07/01 (Looking SE)

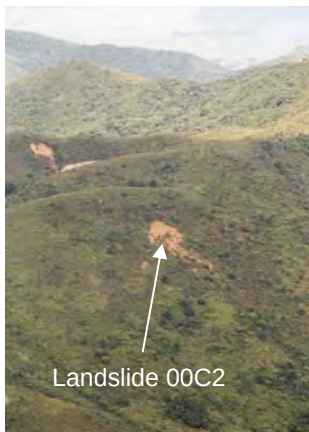


Photo. No. CH01QRWXCC Date 09/07/01 (Looking E)

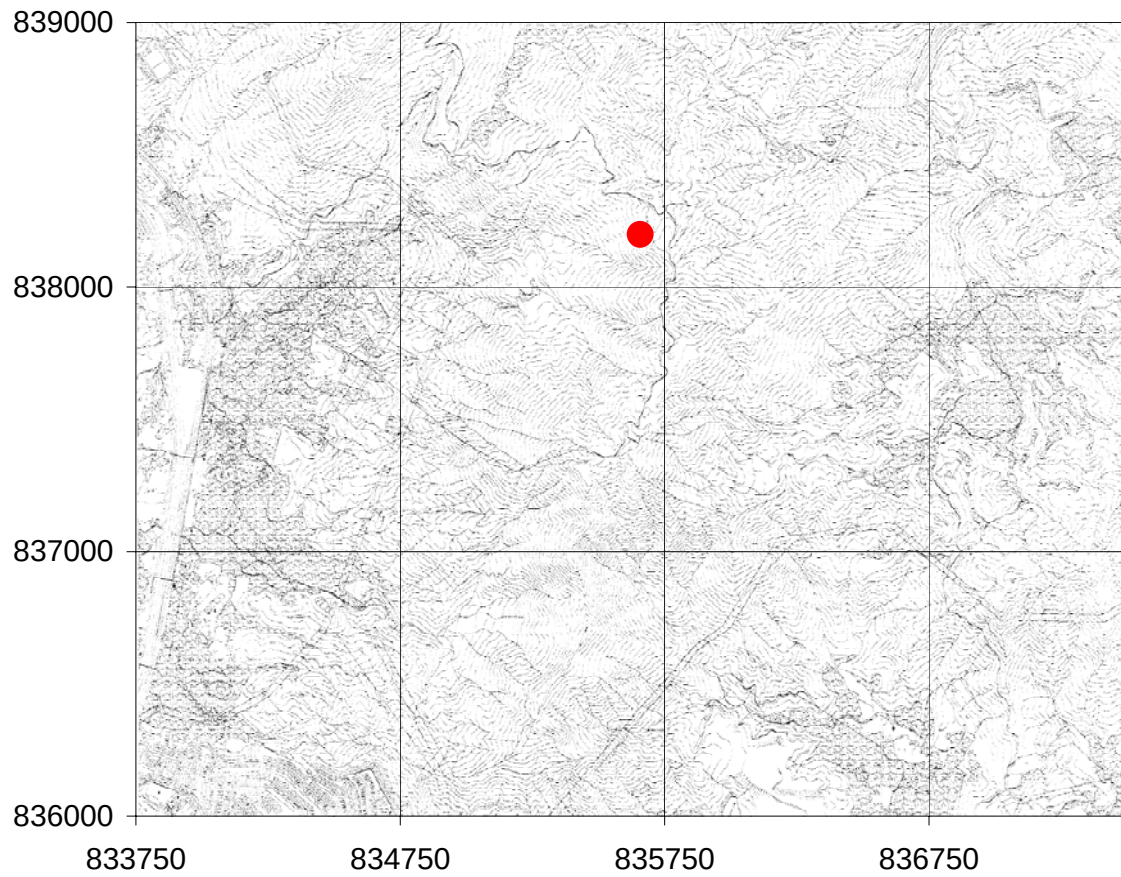


Photo. No. Date / / (Looking)

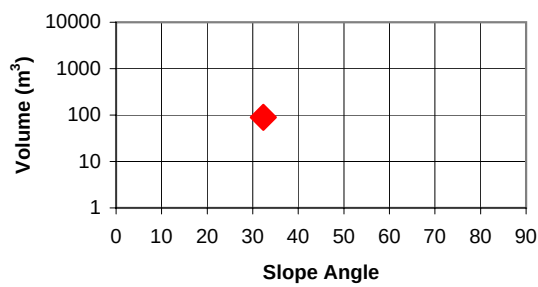
Photo. No. Date / / (Looking)

Landslide Location Plan

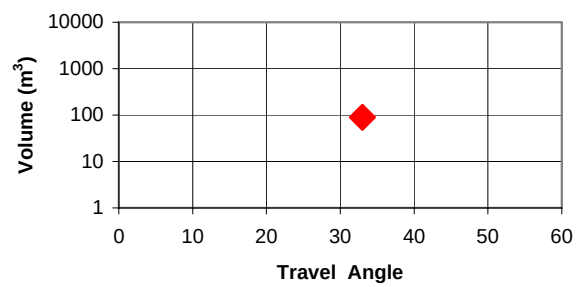
00C2



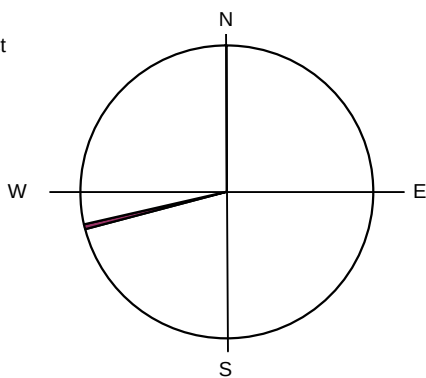
Comparison of Landslide Source Volume and Slope Angle



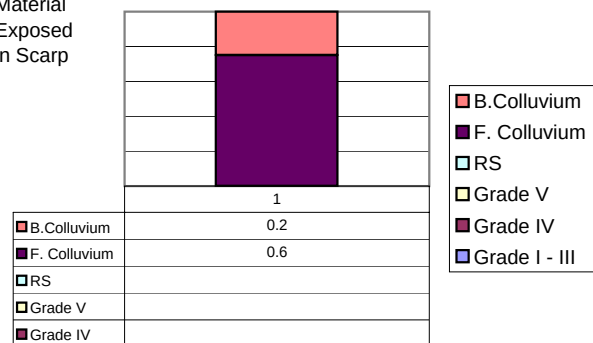
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

00D2

Mapped by	JAT	Date	9-Jul-01	Weather	Cloudy
Grid Ref.	835360 E		838315 N	() GPS	(X) Estimated
Date of failure	2000	Evidence	Helicopter trip		

SOURCE

Length	14	Width	10	Depth	0.5	Volume	35
B. Colluvium		F. Colluvium	0.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		29
		Slope Aspect
		200

DEBRIS

() Non-channelised	() Channelised	(x) Not known	() Entrained material
Estimated travel distance	104	Estimated travel angle	31

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

No access due to dense vegetation

FURTHER STUDY

() Yes (X) Possible () No particular interest

Photo. No. P8220053 Date 22/08/01 (Looking NW)



Photo. No. CH01QRWXCC Date 09/07/01 (Looking E)



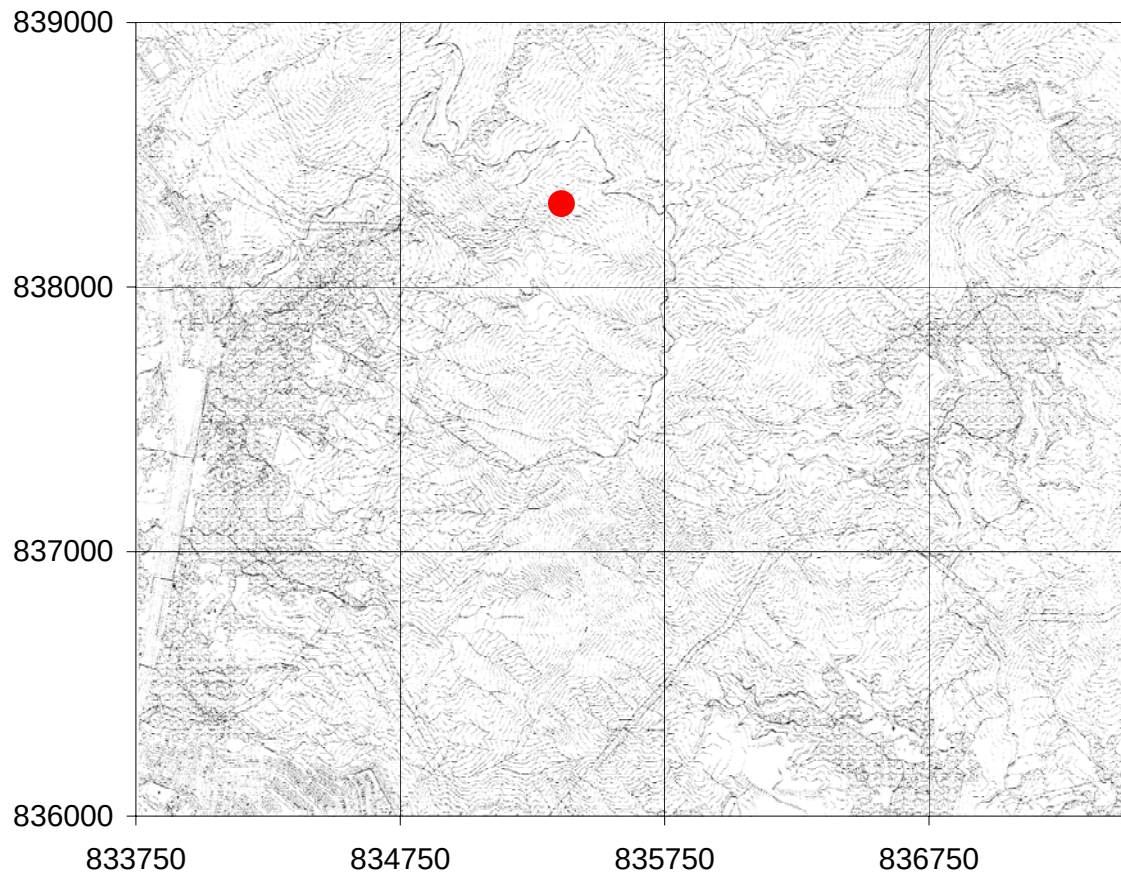
Photo. No. CH01ZAA Date 09/07/01 (Looking SE)



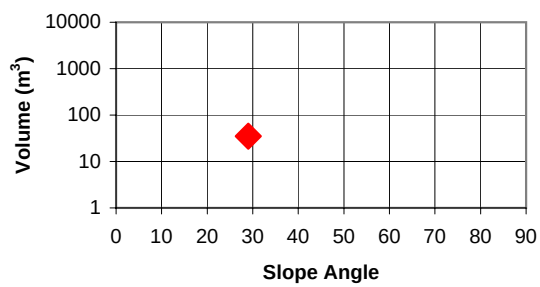
Photo. No. Date / / (Looking)

Landslide Location Plan

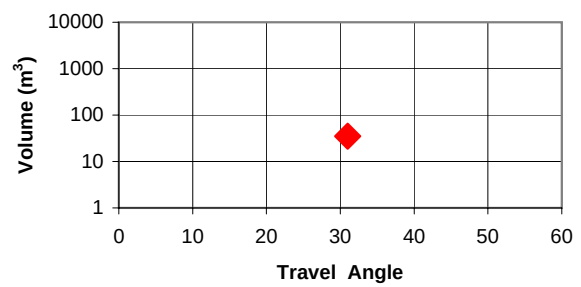
00D2



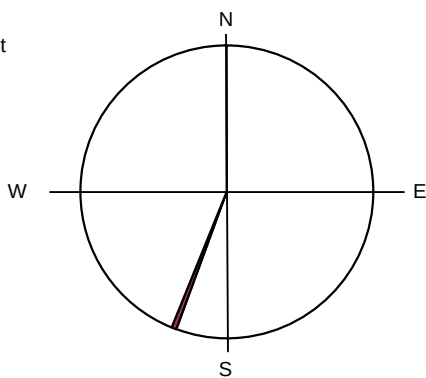
Comparison of Landslide Source Volume and Slope Angle



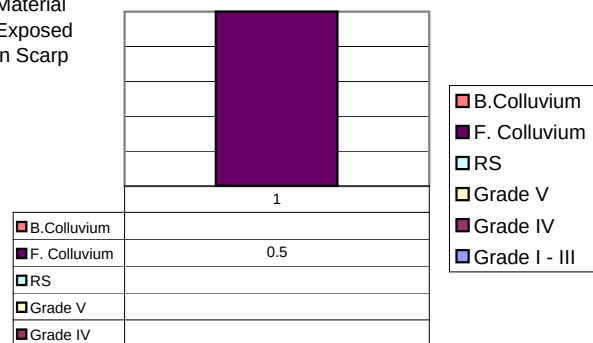
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

00E2

Mapped by	JAT	Date	9-Jul-01	Weather	Cloudy
Grid Ref.	835347 E		838343 N	() GPS	(X) Estimated
Date of failure	2000	Evidence	Helicopter trip		

SOURCE

Length	14	Width	10	Depth	0.5	Volume	35
B. Colluvium		F. Colluvium	0.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		28
		Slope Aspect
		197

DEBRIS

(X) Non-channelised	() Channelised	() Not known	() Entrained material
Estimated travel distance	90	Estimated travel angle	30

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

No access due to dense vegetation

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No. CH01QRWXCC Date 09/07/01 (Looking E) Photo. No. P8220054 Date 09/07/01 (Looking NW)



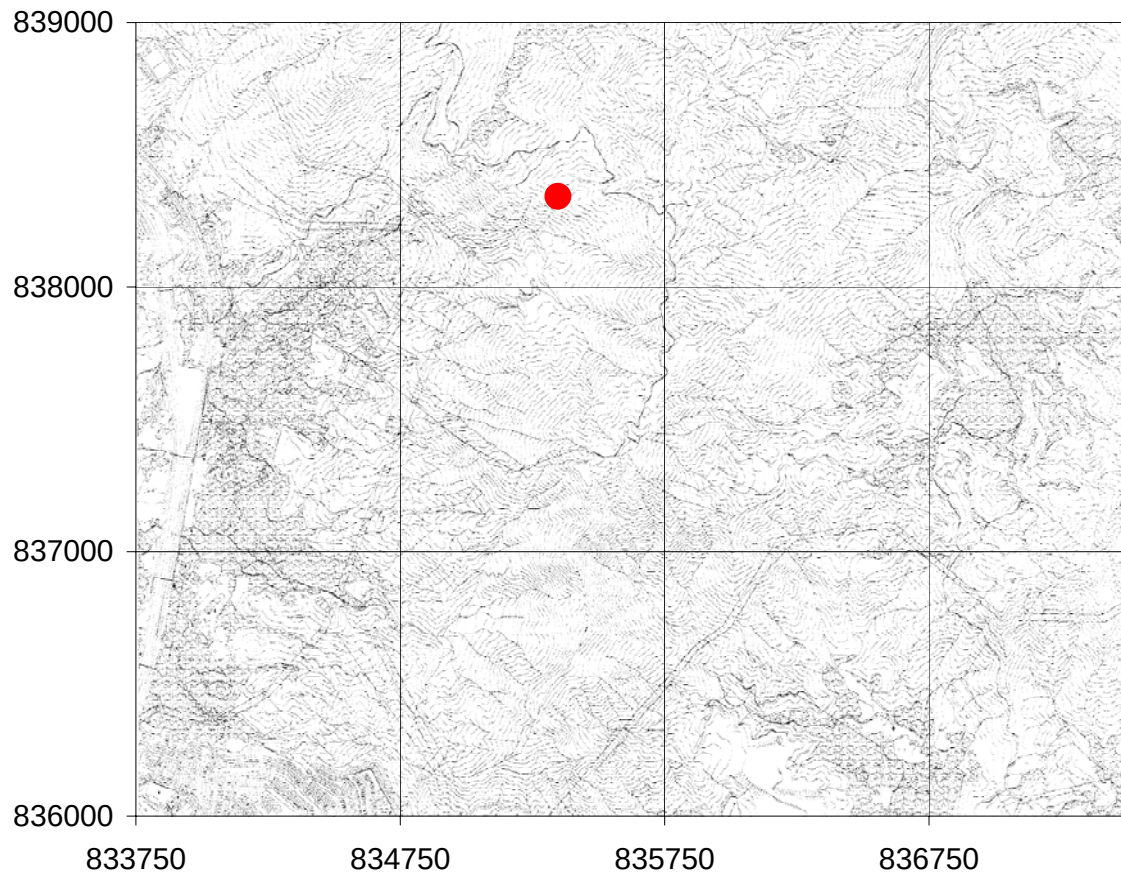
Photo. No. CH01ZAA Date 09/07/01 (Looking SE)



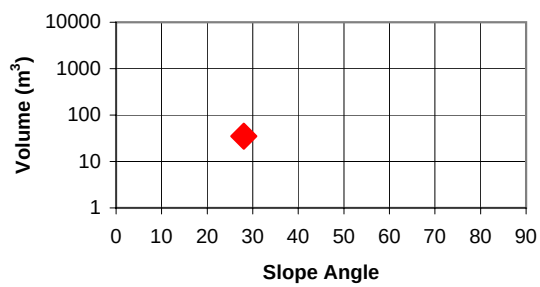
Photo. No. Date / / (Looking)

Landslide Location Plan

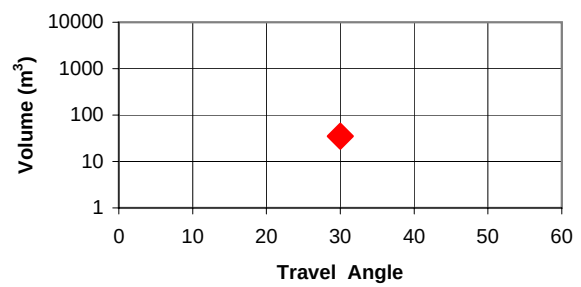
00E2



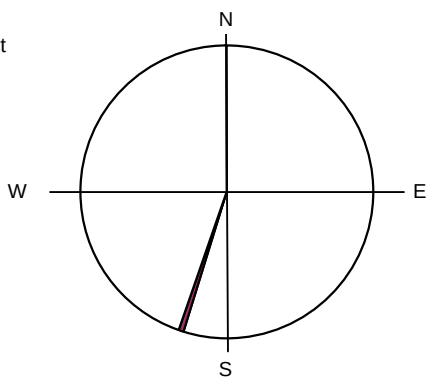
Comparison of Landslide Source Volume and Slope Angle



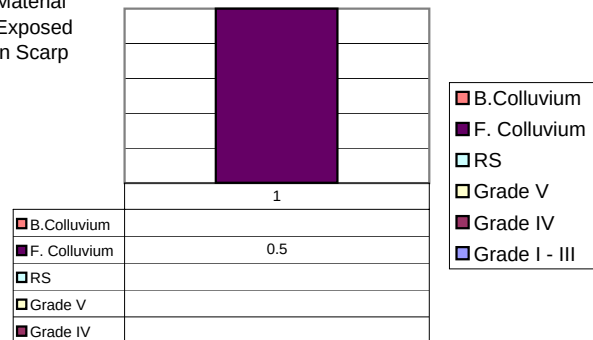
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

00F1

Mapped by	JAT	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835426 E		837235 N	() GPS	(X) Estimated
Date of failure	2000	Evidence	Helicopter trip in July 2001		

SOURCE

Length	8	Width	6	Depth	0.5	Volume	12
B. Colluvium	0.1	F. Colluvium	0.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle 38
		Slope Aspect 220

DEBRIS

(X) Non-channelised	() Channelised	() Not known	() Entrained material
Estimated travel distance	40	Estimated travel angle	31

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

Steep terrain no access

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No. CH00&01 Date 09/07/01 (Looking NE)

Photo. No. 01DSW Date 09/08/01 (Looking NW)

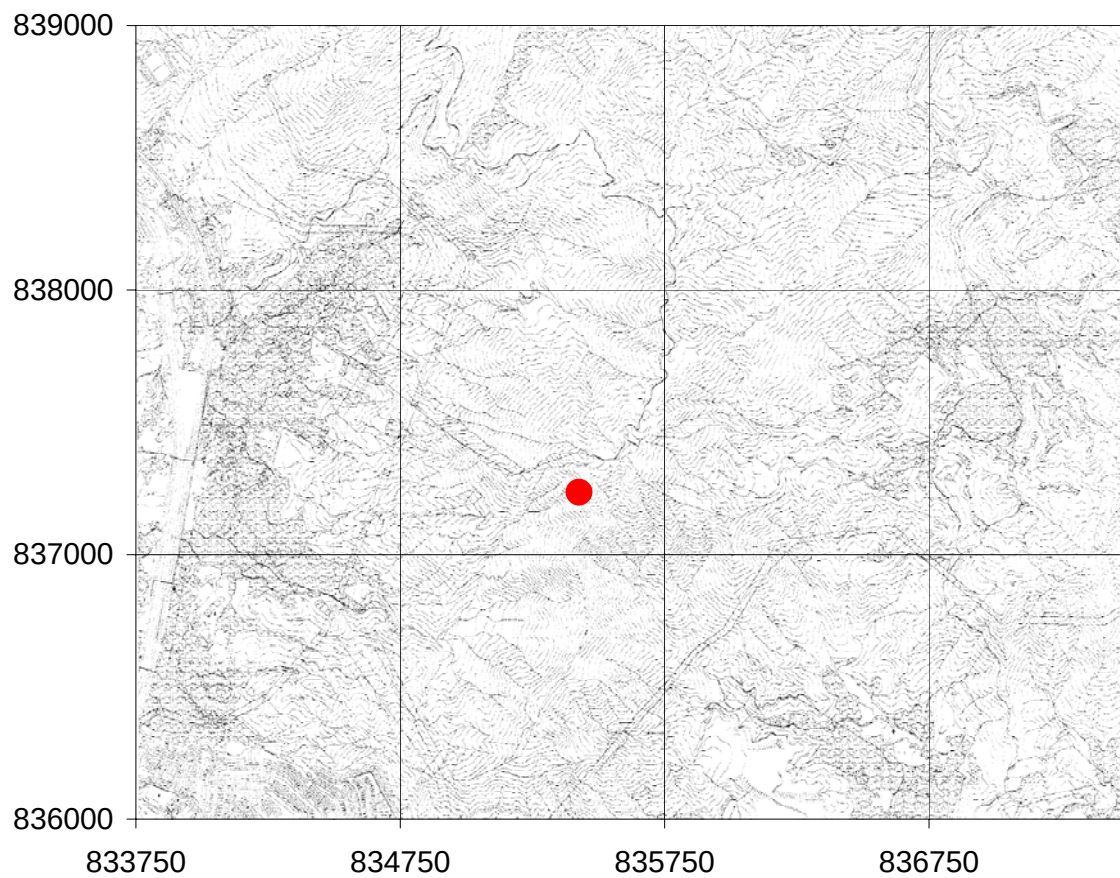


Photo. No. Date / / (Looking)

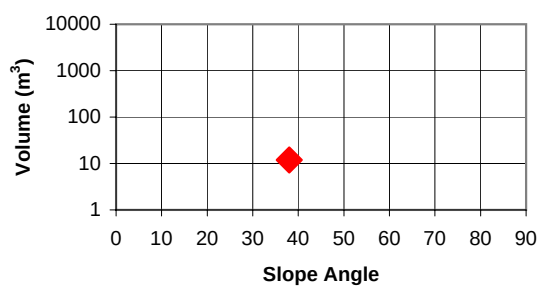
Photo. No. Date / / (Looking)

Landslide Location Plan

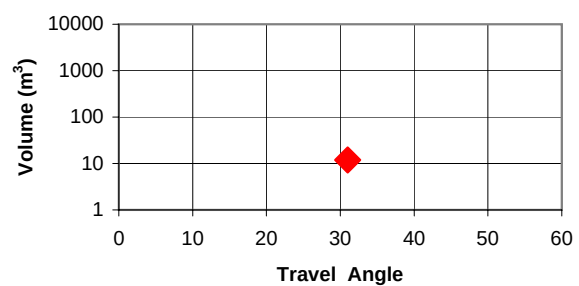
00F1



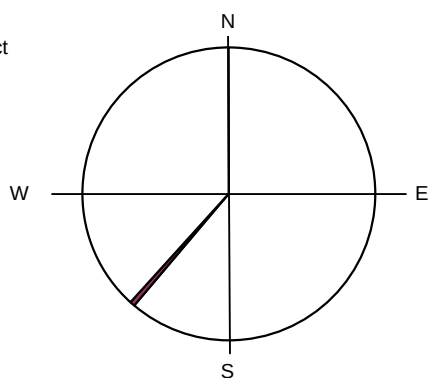
Comparison of Landslide Source Volume and Slope Angle



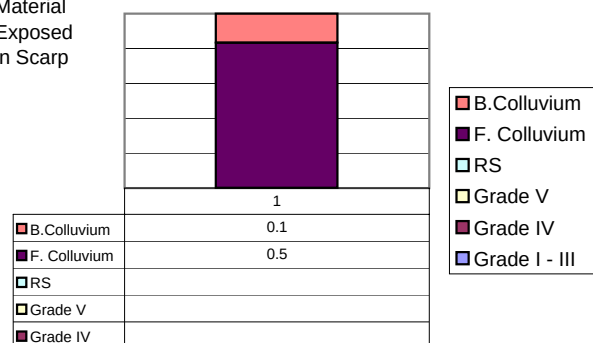
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01A

Mapped by	JAT	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835642 E		837271 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	First Reported to GEO, Helicopter trip		

SOURCE

Length	20	Width	8	Depth	1	Volume	80
B. Colluvium		F. Colluvium	2	RS		Grade V	0.2
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	(X) Below ridgeline	Slope angle
		33.9
		Slope Aspect
		143

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	60	Estimated travel angle	29

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	(X) Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	(X) Erosion pipes

Notes:

Many pipes approximately 30 mm diameter Some quartz Veins
 Much post-failure gullying

FURTHER STUDY () Yes (X) Possible () No particular interest

Photo. No. CH01ABCNK Date 09/08/01 (Looking E) Photo. No. P8090002 Date 08/09/01 (Looking S)

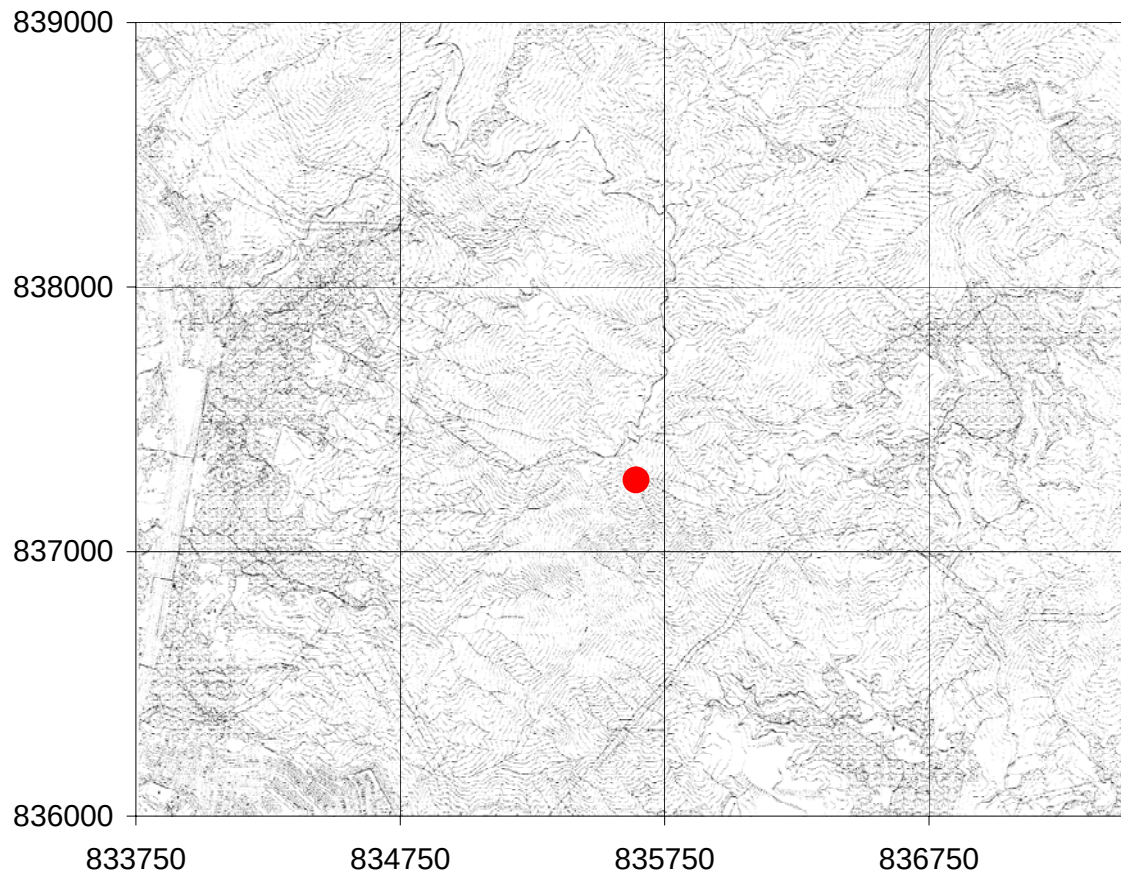


Photo. No. CH01ACLOSENIK Date 09/08/01 (Looking E) Photo. No. Date / / (Looking)

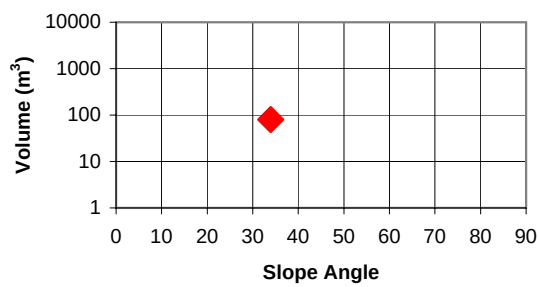


Landslide Location Plan

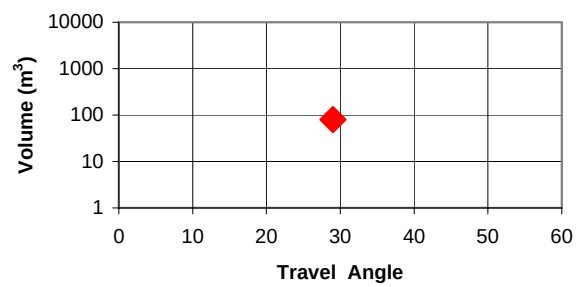
01A



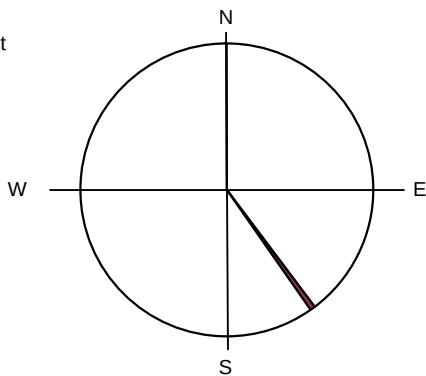
Comparison of Landslide Source Volume and Slope Angle



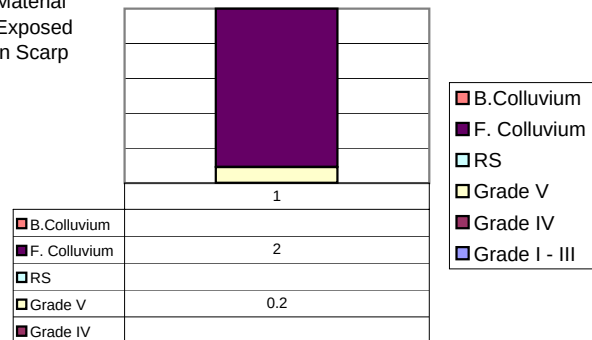
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01B

Mapped by	JAT	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835633 E		837221 N	(X) GPS	() Estimated
Date of failure	Jun-2001	Evidence	Helicopter trip in July 2001		

SOURCE

Length	27	Width	16	Depth	1.5	Volume	324
B. Colluvium	0.7	F. Colluvium	0.8	RS		Grade V	
Grade IV	0.2	Grade I - III	I/p	Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	(X) Below ridgeline	Slope angle
		34.9
		Slope Aspect
		197

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	120	Estimated travel angle	32

LANDSLIDE TYPE

() Soil	() Rock	(X) Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	(X) Deterioration of rock mass	() Seepage
() Within scar of relict failure	(X) Infilled joints	() Erosion pipes

Notes:

FURTHER STUDY (X) Yes () Possible () No particular interest

Photo. No.P8090006 Date 09/08/01 (Looking NE)



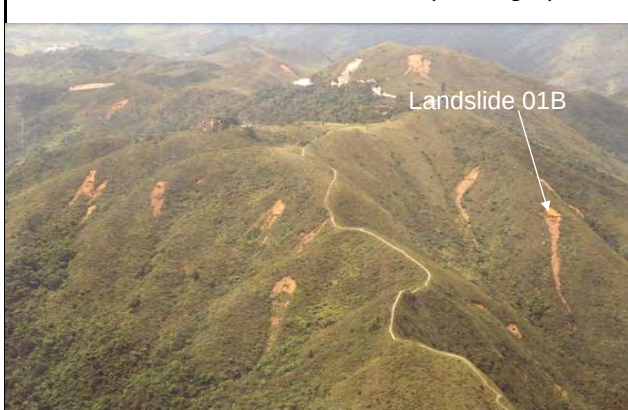
Photo. No.P8090007 Date 08/09/01 (Looking SE)



Photo. No.P8090009 Date 09/08/01 (Looking NE)

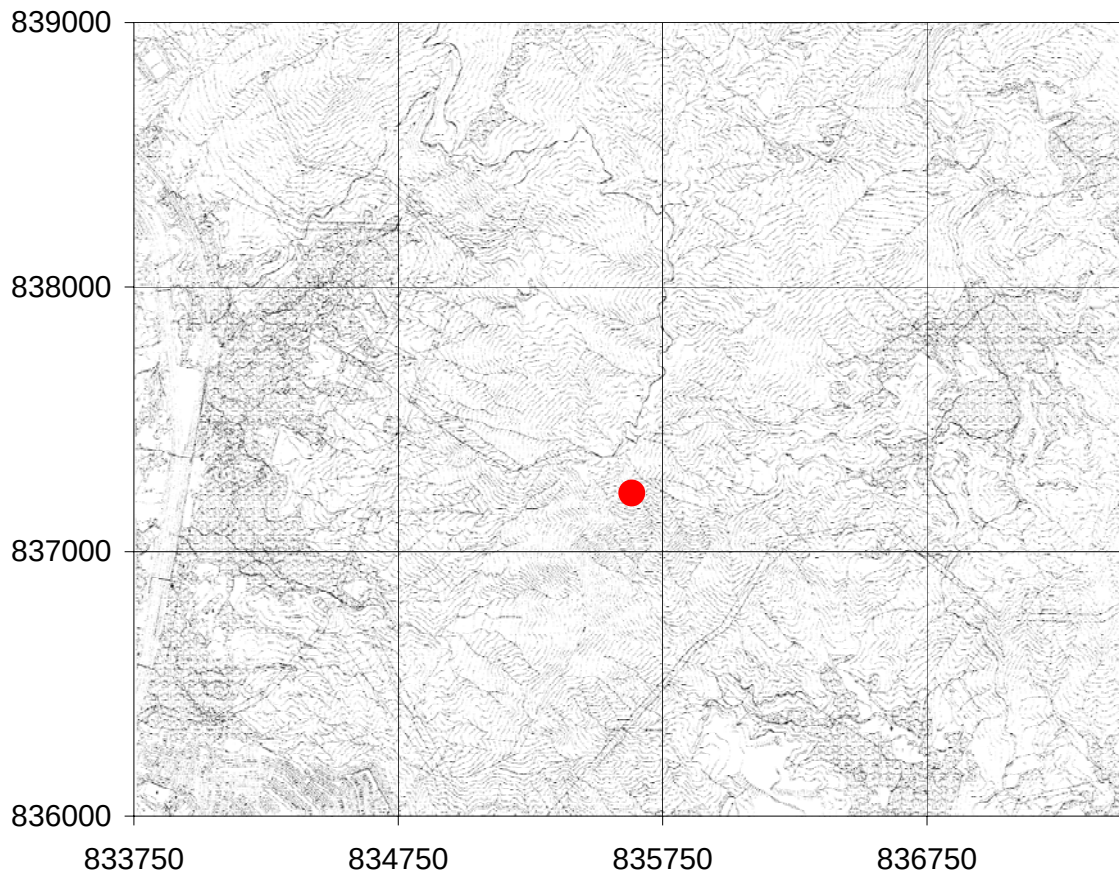


Photo. No.CH00&01 Date 07/07/01 (Looking N)

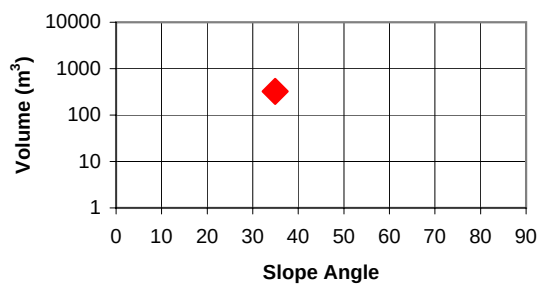


Landslide Location Plan

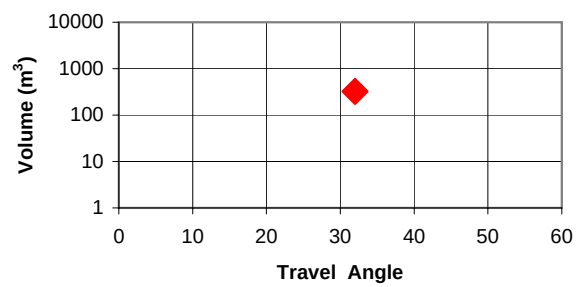
01B



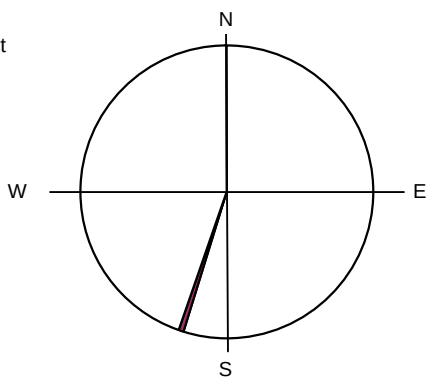
Comparison of Landslide Source Volume and Slope Angle



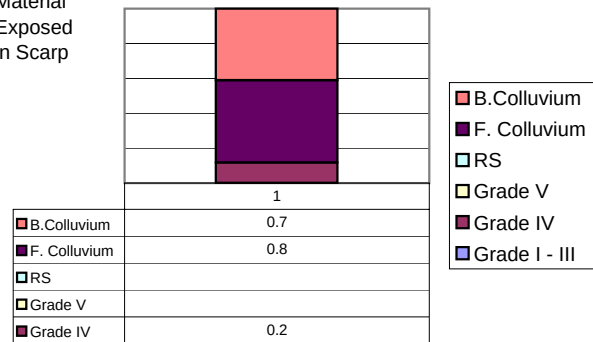
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01C

Mapped by	JAT	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835600 E		837272 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	12	Width	7	Depth	0.5	Volume	21
B.Colluvium		F. Colluvium	0.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		34
		Slope Aspect
		238

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	50	Estimated travel angle	30

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
(X) Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No.P8090001 Date 09/08/01 (Looking E)



Photo. No.P8090025 Date 09/08/01 (Looking NE)



Photo. No.CH00&01 Date 07/07/01 (Looking N)

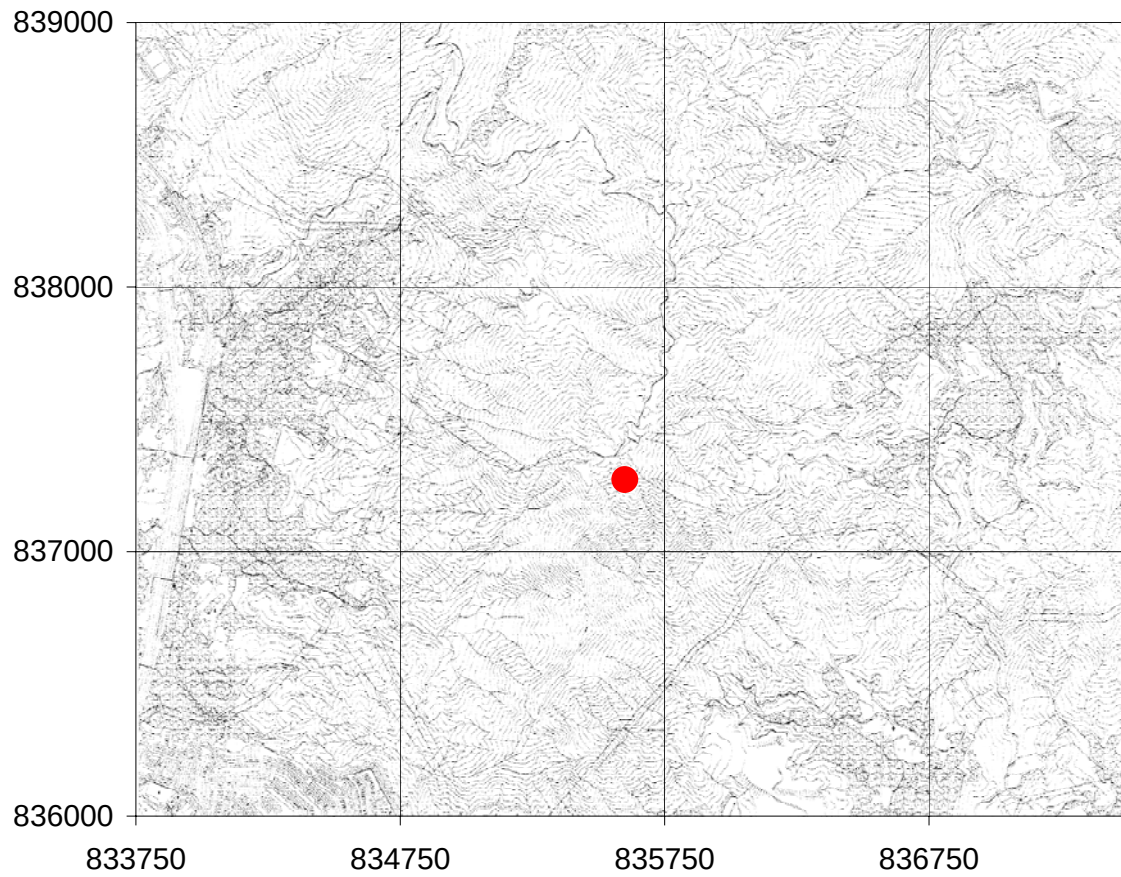


Photo. No.CH01ABC Date 09/08/01 (Looking E)

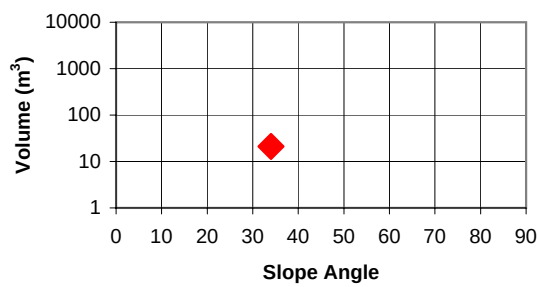


Landslide Location Plan

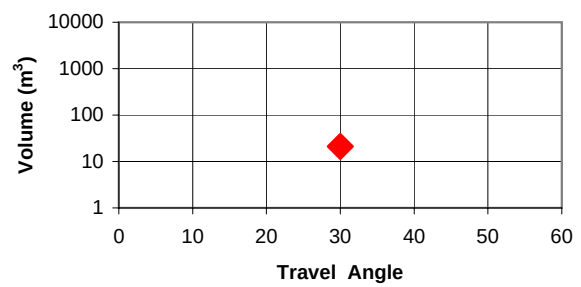
01C



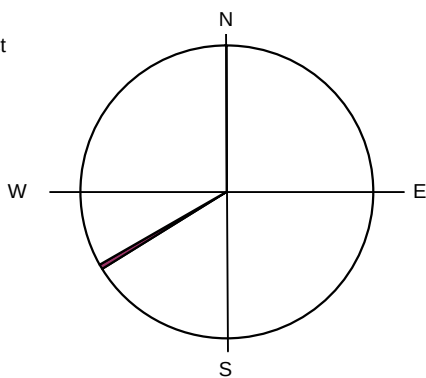
Comparison of Landslide Source Volume and Slope Angle



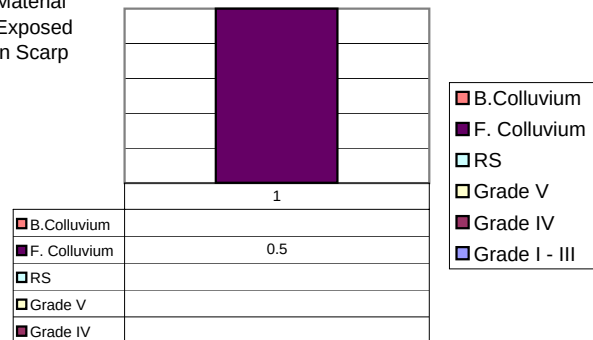
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01D

Mapped by	DMD/JAT	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835382 E		837136 N	() GPS	(X) Estimated
Date of failure	Jun-01	Evidence	Heli trip in July 2001		

SOURCE

Length	15	Width	8	Depth	0.8	Volume	48
B. Colluvium	0.3	F. Colluvium	0.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		41.6
		Slope Aspect
		222

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	60	Estimated travel angle	30

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

No access due to very steep terrain

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No. CH00&01 Date 9/7/01 (Looking NE)

Photo. No. 01DSW Date 09/08/01 (Looking NW)

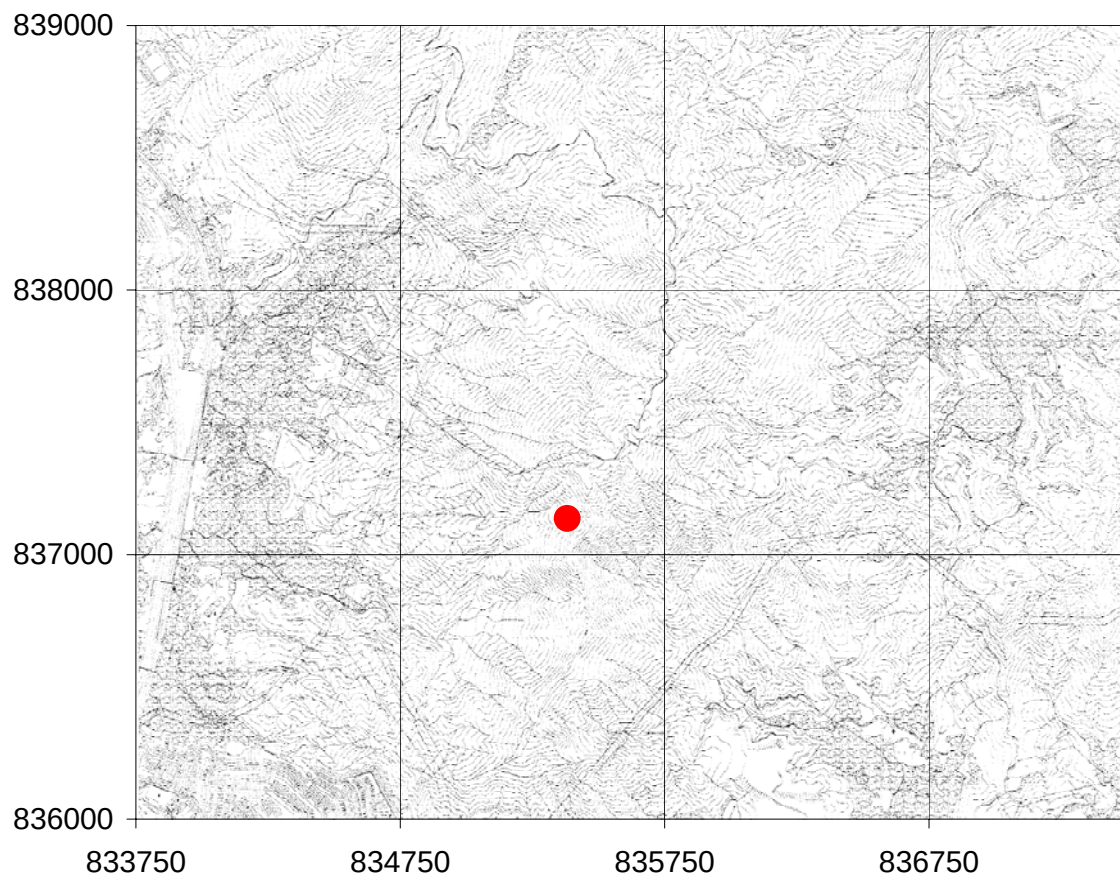


Photo. No. Date / / (Looking)

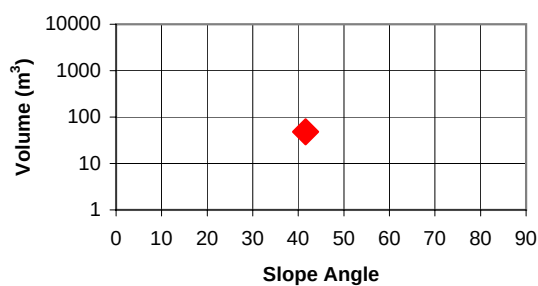
Photo. No. Date / / (Looking)

Landslide Location Plan

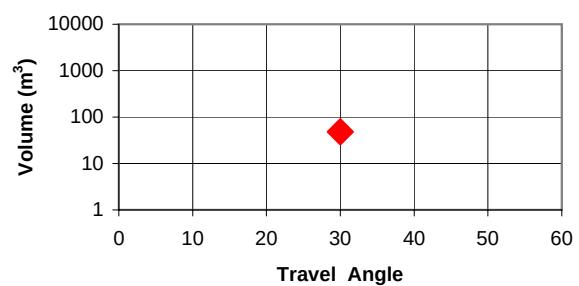
01D



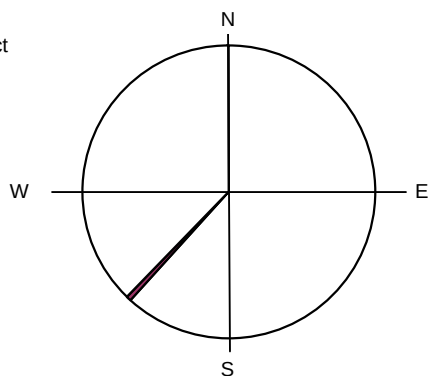
Comparison of Landslide Source Volume and Slope Angle



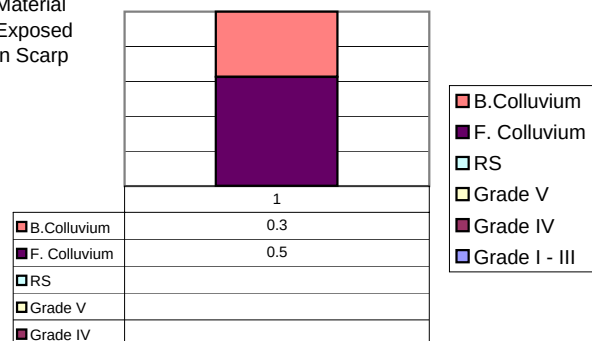
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01G

Mapped by	DMD	Date	9/8/2001	Weather	Very Hot and sunny
Grid Ref.	835351 E		837302 N	() GPS	(X) Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in Junly 2001		

SOURCE

Length	17	Width	12	Depth	0.5	Volume	51
B.Colluvium	0.1	F. Colluvium	0.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	(X) Below ridgeline	Slope angle
		31.9
		Slope Aspect
		235

DEBRIS

(X) Non-channelised	() Channelised	() Not known	() Entrained material
Estimated travel distance	40	Estimated travel angle	29

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
() Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

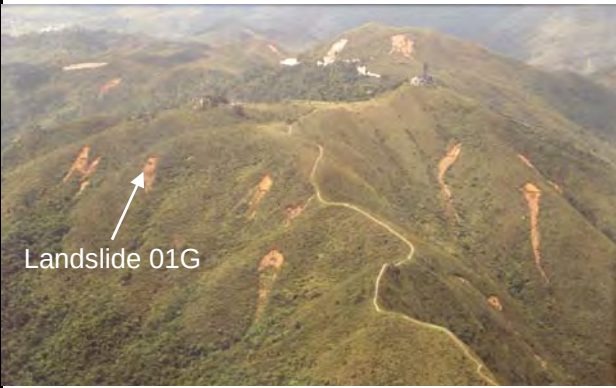
GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

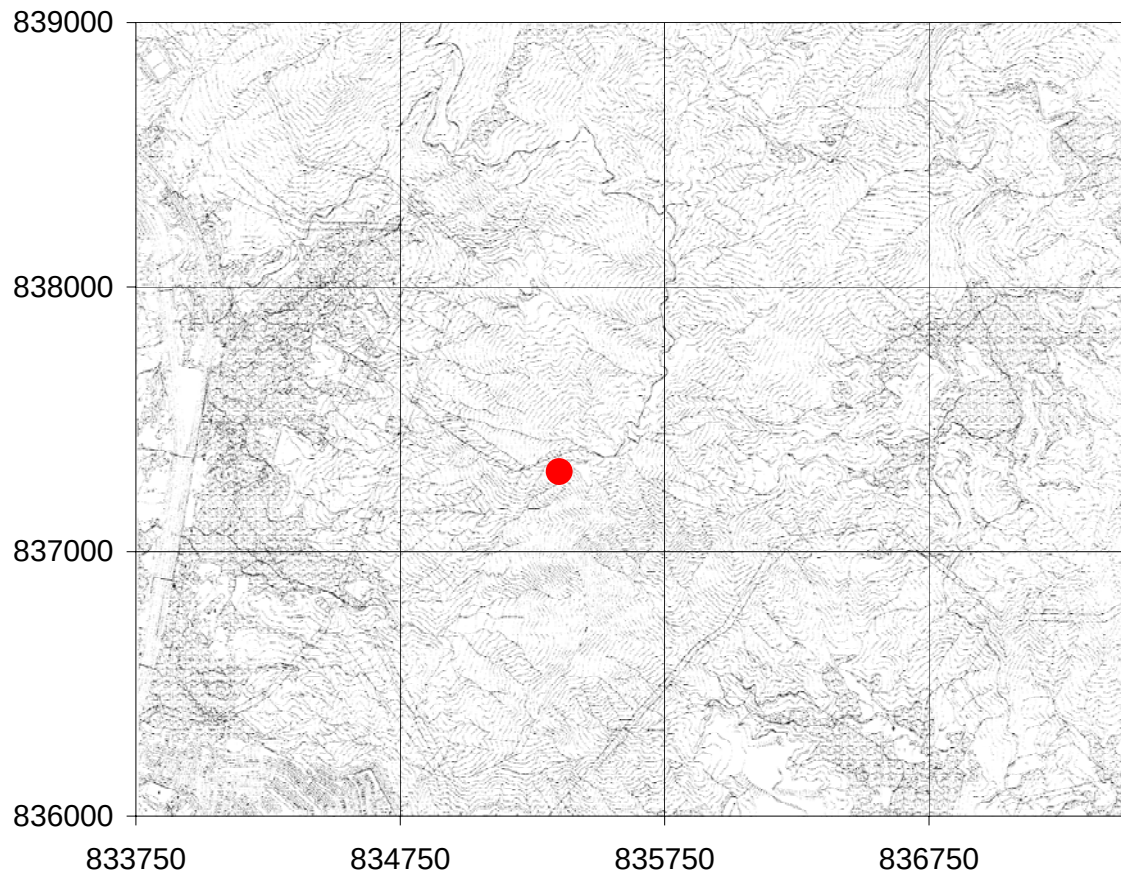
Steep terrain no access

FURTHER STUDY () Yes () Possible (X) No particular interest

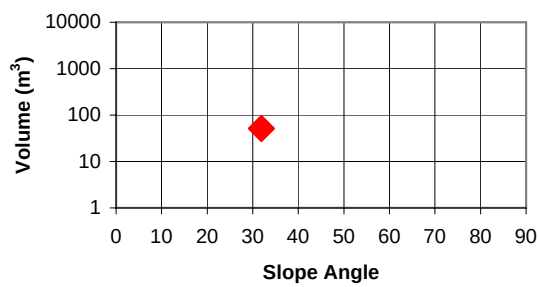
Photo. No. CH00&01 Date 09/07/01 (Looking NE)	Photo. No. CHG&HNIK Date 09/08/01 (Looking NW)
	
Photo. No. Date / / (Looking)	Photo. No. Date / / (Looking)

Landslide Location Plan

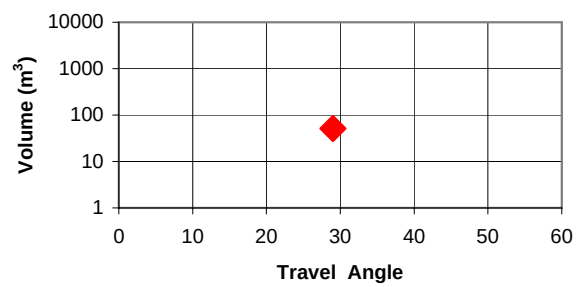
01G



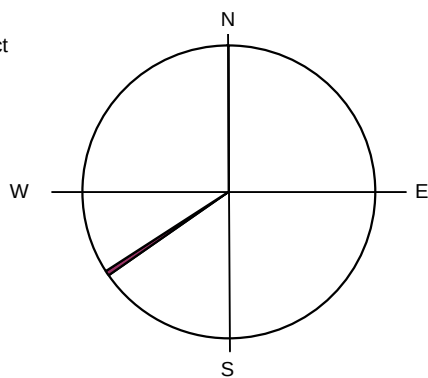
Comparison of Landslide Source Volume and Slope Angle



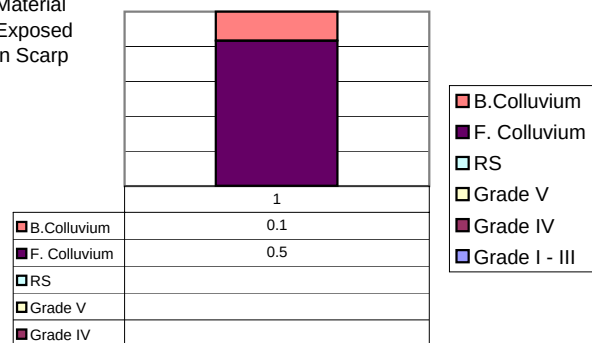
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01H1

Mapped by	JAT	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835345 E		837365 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	22	Width	8	Depth	1	Volume	88
B. Colluvium	0.2	F. Colluvium	0.8	RS		Grade V	
Grade IV	0.1	Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		35
		Slope Aspect
		208

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	60	Estimated travel angle	30

LANDSLIDE TYPE

() Soil	() Rock	(X) Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

Numerous quartz veins over surface of rupture
Controlled by local thick deposits of colluvium

FURTHER STUDY (X) Yes () Possible () No particular interest

Photo. No.P8090022 Date 09/08/01 (Looking W)



Photo. No.P8090024 Date 09/08/01 (Looking W)



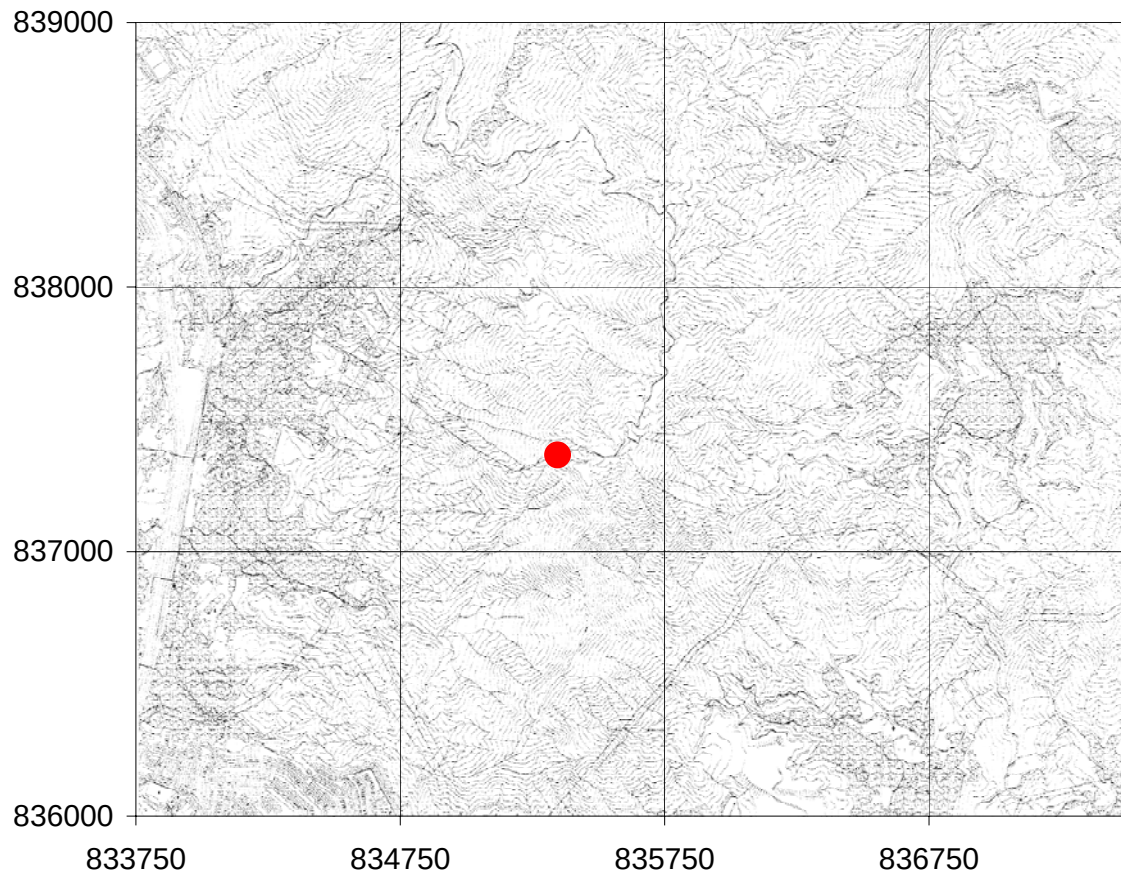
Photo. No.CH00&01 Date 09/08/01 (Looking N)



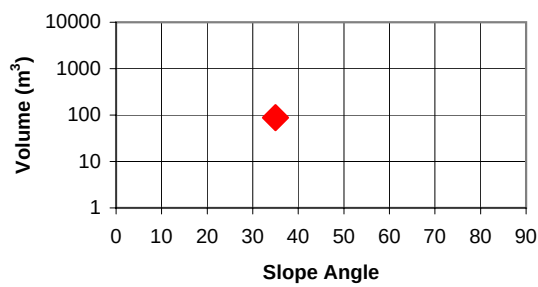
Photo. No. Date / / (Looking)

Landslide Location Plan

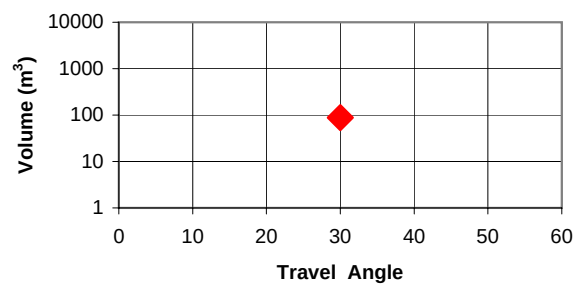
01H1



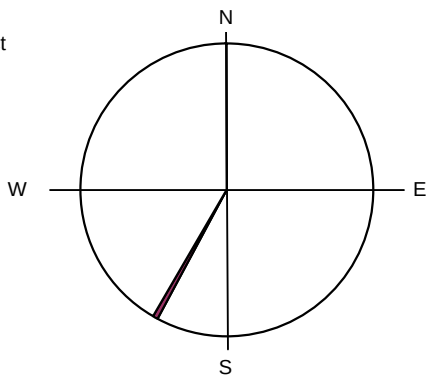
Comparison of Landslide Source Volume and Slope Angle



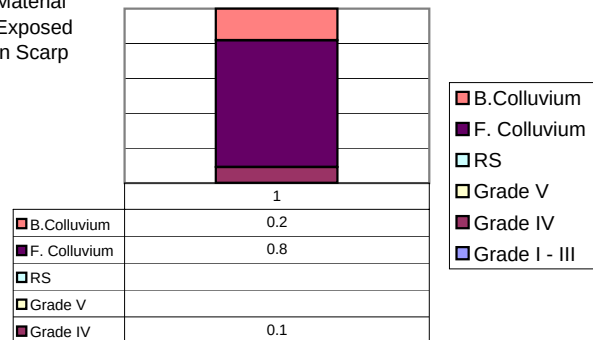
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01H2

Mapped by	JAT	Date	9/8/2001	Weather	Very hot and Sunny
Grid Ref.	835352 E		837350 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip July 2001		

SOURCE

Length	8	Width	6	Depth	0.5	Volume	12
B.Colluvium	0.5	F. Colluvium		RS		Grade V	0.1
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		34.9
		Slope Aspect
		210

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	50	Estimated travel angle	40

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	() SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
(X) Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

Step observed near toe of landslide is possible crown of previous landslide

FURTHER STUDY (X) Yes () Possible () No particular interest

Photo. No.P8090018 Date 09/08/01 (Looking E)



Photo. No.P8090019 Date 09/08/01 (Looking E)



Photo. No.P8090020 Date 09/08/01(Looking W)

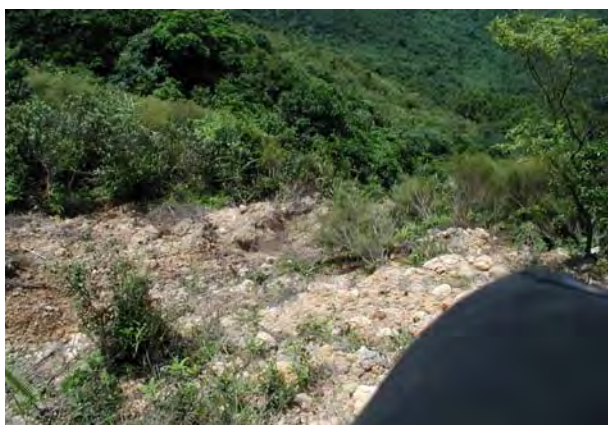
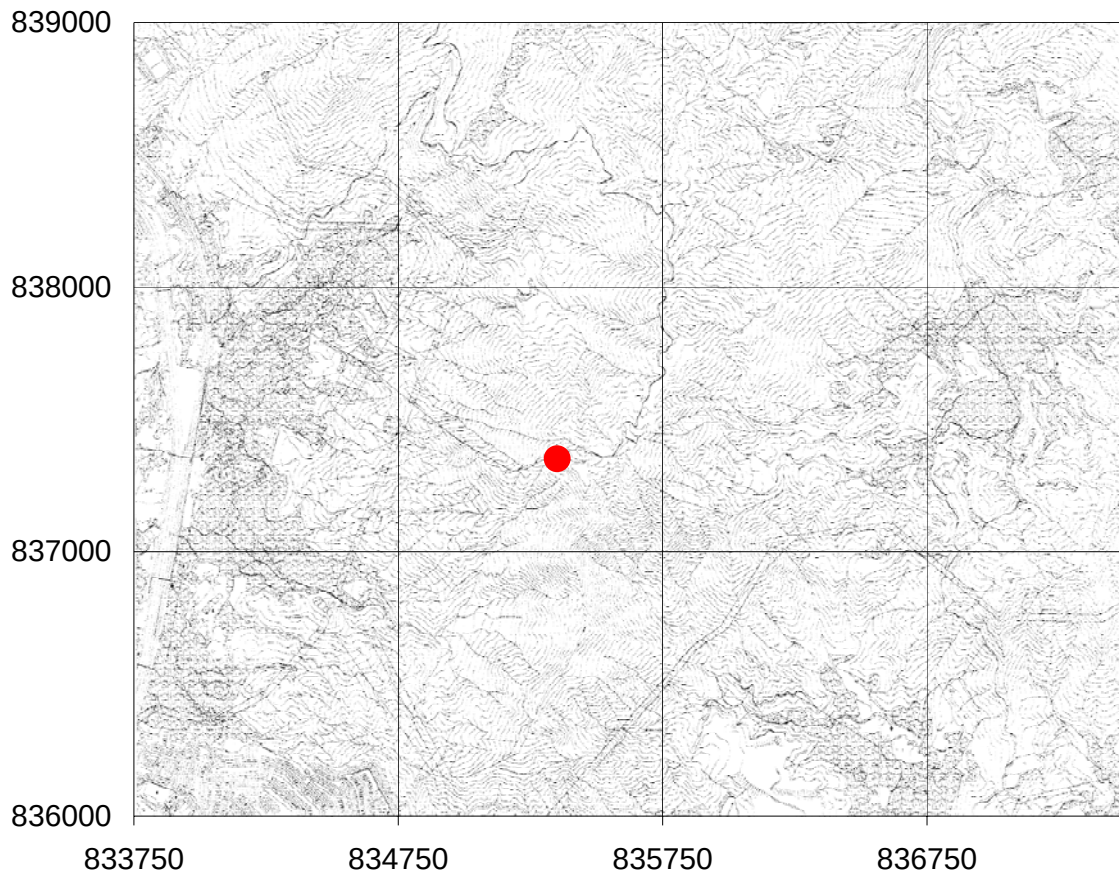


Photo. No.CH00&01 Date 07/07/01(Looking N)

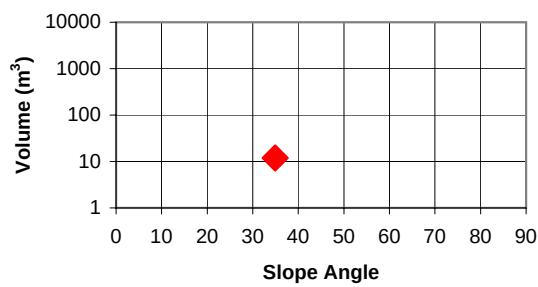


Landslide Location Plan

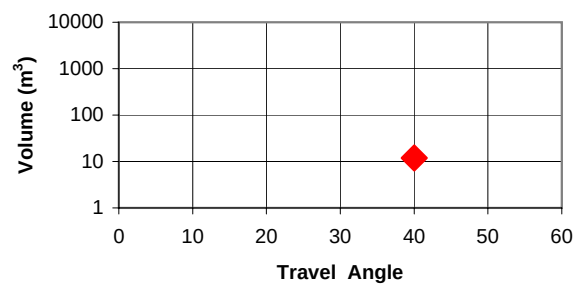
01H2



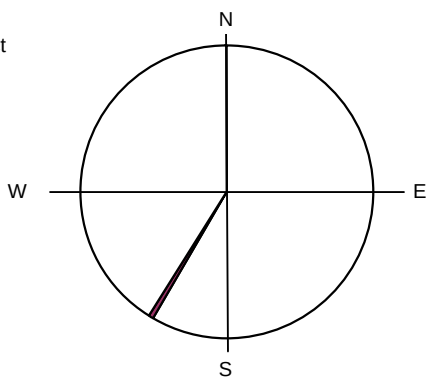
Comparison of Landslide Source Volume and Slope Angle



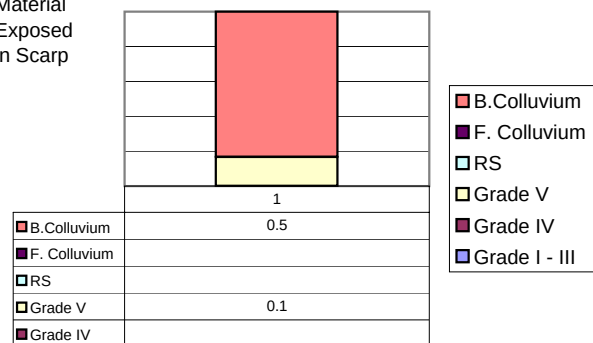
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01I

Mapped by	DMD	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835288 E		837359 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	10	Width	5	Depth	0.8	Volume	20
B. Colluvium		F. Colluvium	0.5	RS		Grade V	
Grade IV	0.1	Grade I - III	I/p	Others			

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		35
		Slope Aspect
		265

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	30	Estimated travel angle	32

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

Rock exposed in large area of the base of the landslide scar

FURTHER STUDY () Yes (X) Possible () No particular interest

Photo. No. P8090015 Date 09/08/01 (Looking N)



Photo. No. P8090017 Date 09/08/01 (Looking E)



Photo. No. CH01I Date 09/07/01 (Looking SE)

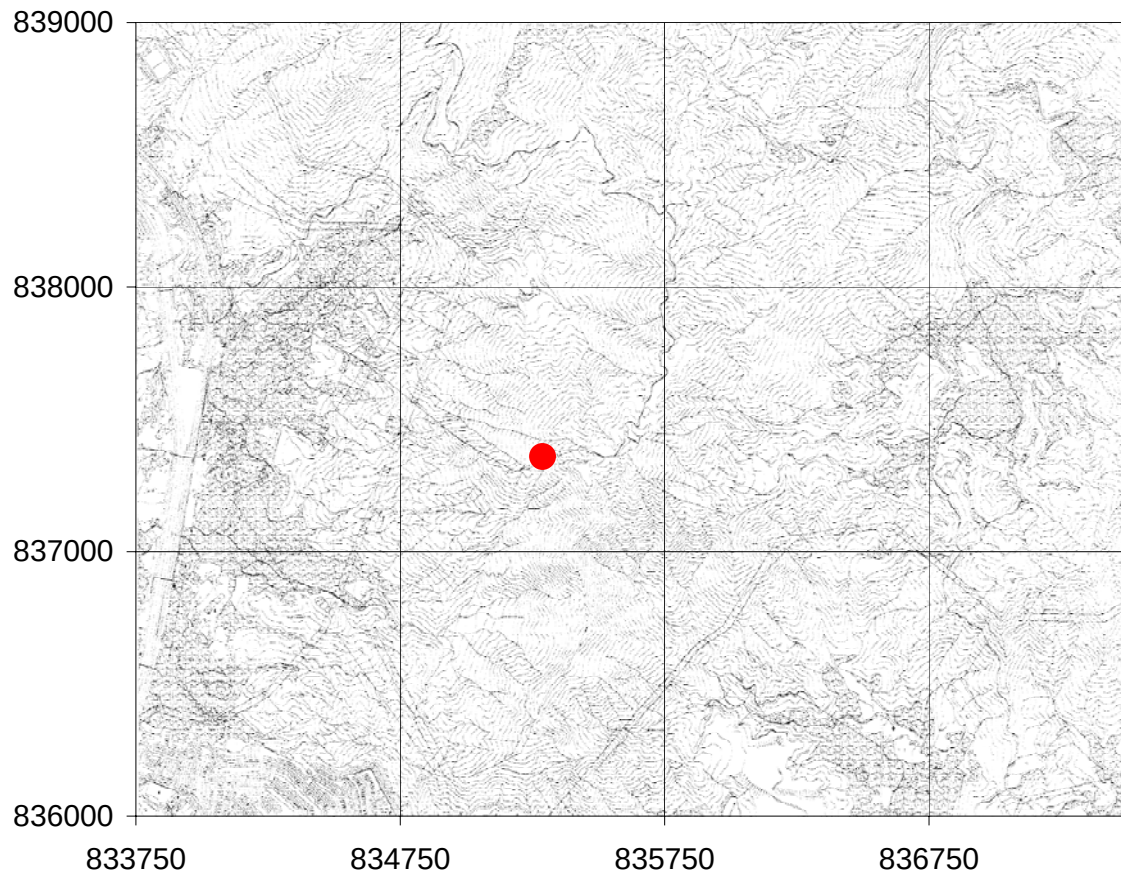


Photo. No. CH01I Date 09/07/01 (Looking SE)

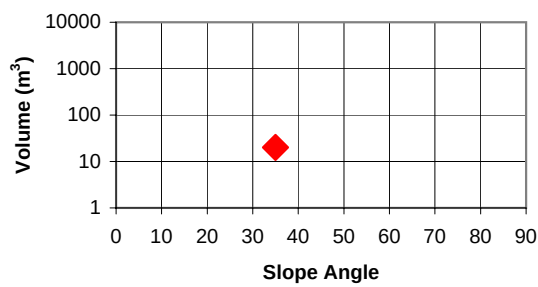


Landslide Location Plan

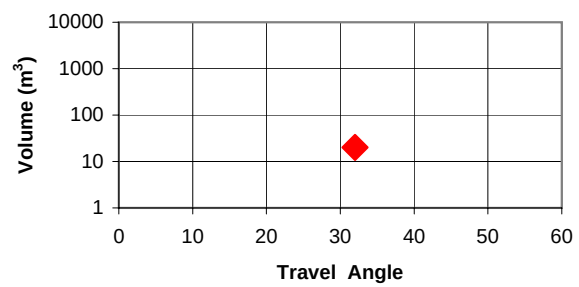
01I



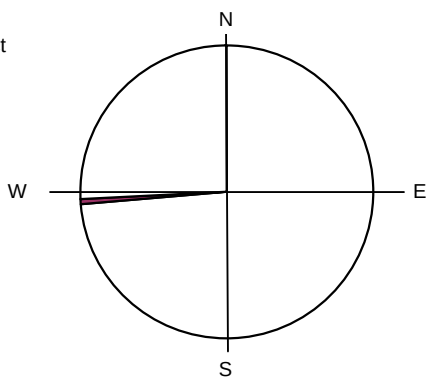
Comparison of Landslide Source Volume and Slope Angle



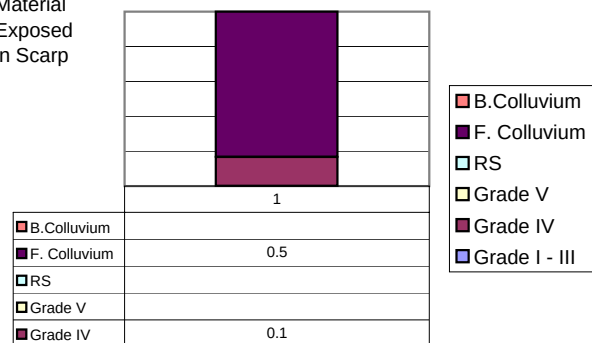
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01J

Mapped by	JAT	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835328 E		836423 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	20	Width	16	Depth	0.8	Volume	128
B. Colluvium	0.7	F. Colluvium	0.2	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	(X) Below ridgeline	Slope angle
		35.4
		Slope Aspect
		134

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	60	Estimated travel angle	22

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	() SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No.P8090030 Date 09/08/01 (Looking NE)



Photo. No.P8090035 Date 09/08/01 (Looking NW)



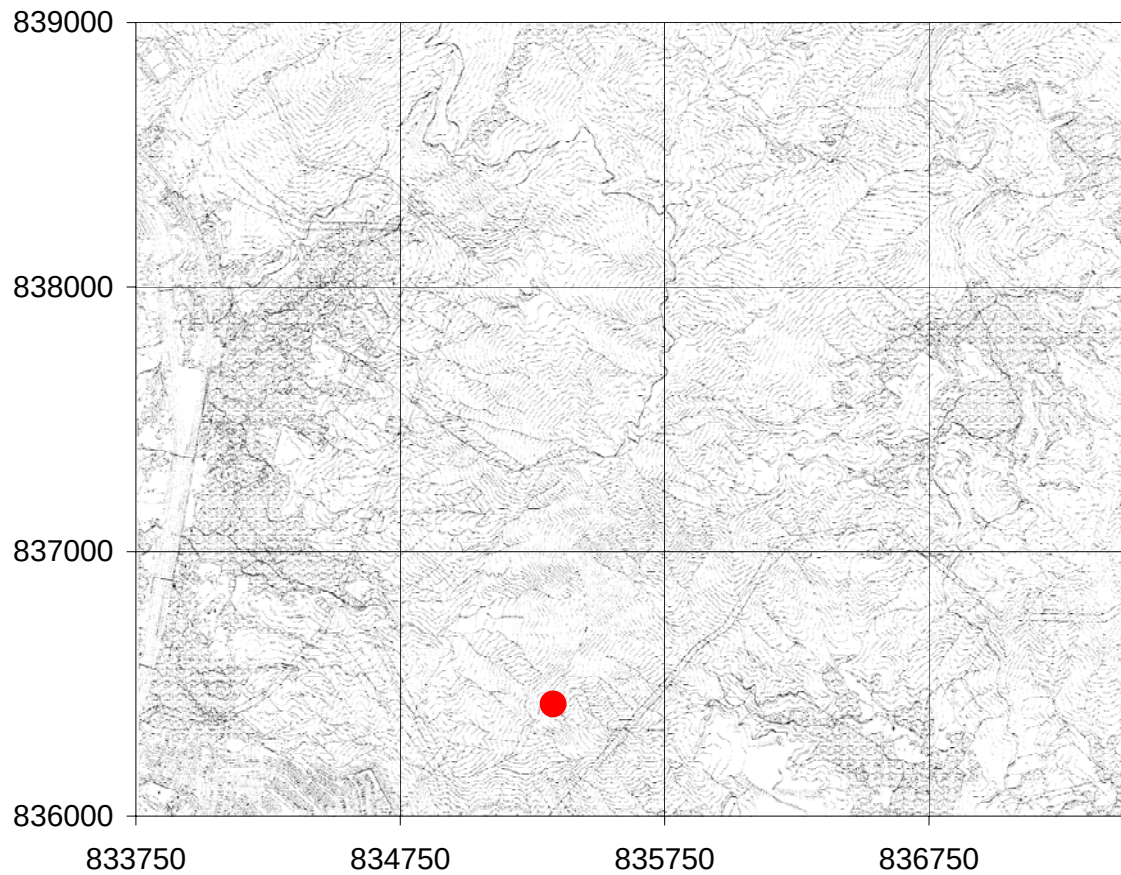
Photo. No.P8090034 Date 09/08/01 (Looking N)



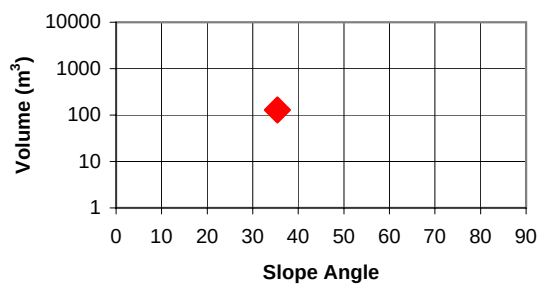
Photo. No. Date / / (Looking)

Landslide Location Plan

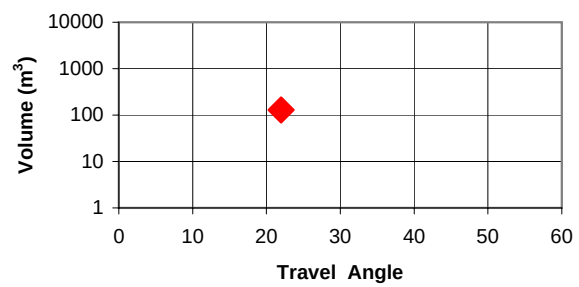
01J



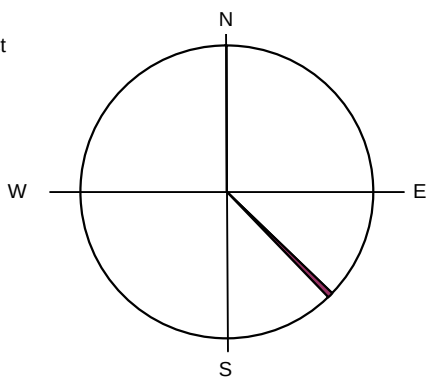
Comparison of Landslide Source Volume and Slope Angle



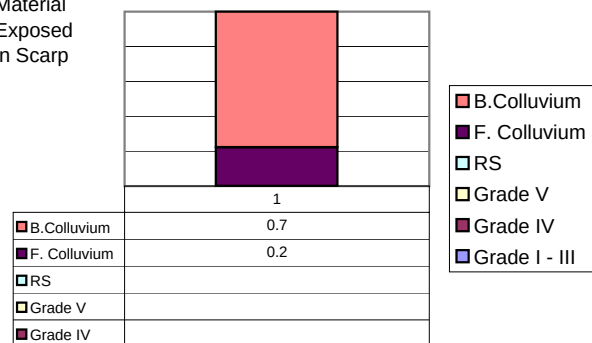
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01K

Mapped by	DMD	Date	9/8/2001	Weather	Very hot and Sunny
Grid Ref.	835370 E		836503 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	8	Width	7	Depth	0.8	Volume	28
B. Colluvium		F. Colluvium	0.3	RS		Grade V	0.2
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		35.1
		Slope Aspect
		138

DEBRIS

() Non-channelised	() Channelised	(X) Not known	() Entrained material
Estimated travel distance	40	Estimated travel angle	28

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	() SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

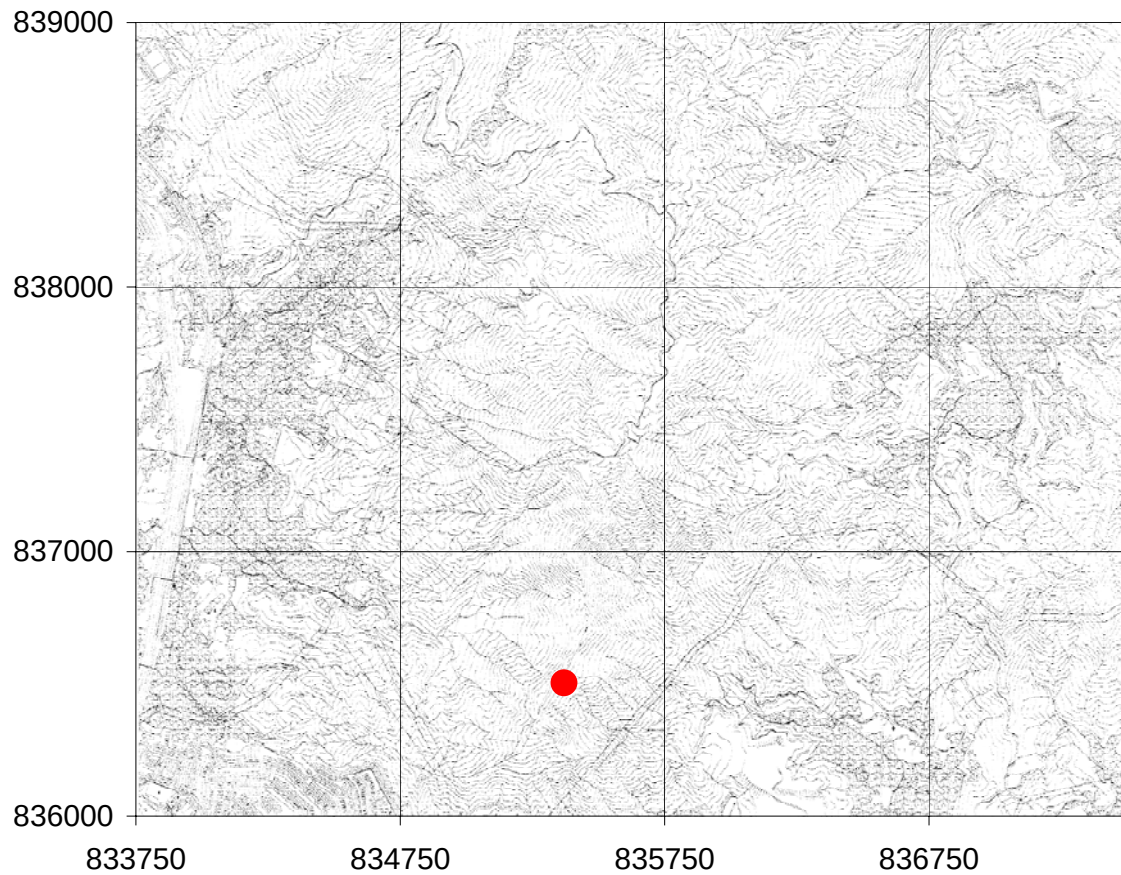
Notes:

FURTHER STUDY () Yes (X) Possible () No particular interest

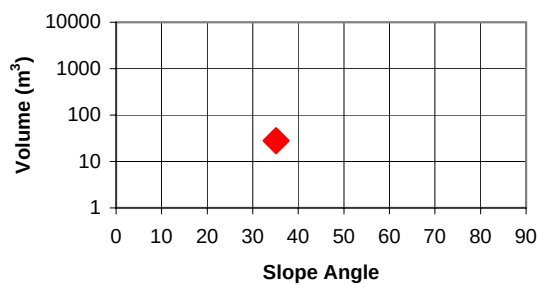
Photo. No. 01JKM Date 09/08/01 (Looking NE)	Photo. No. Date / / (Looking)
	
Photo. No. Date / / (Looking)	Photo. No. Date / / (Looking)

Landslide Location Plan

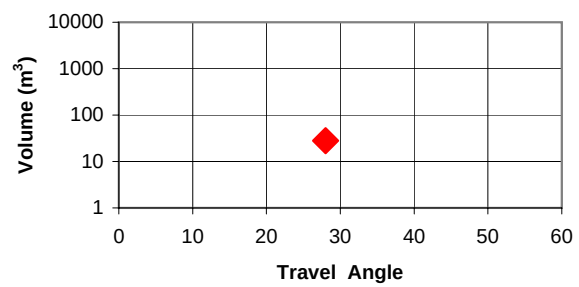
01K



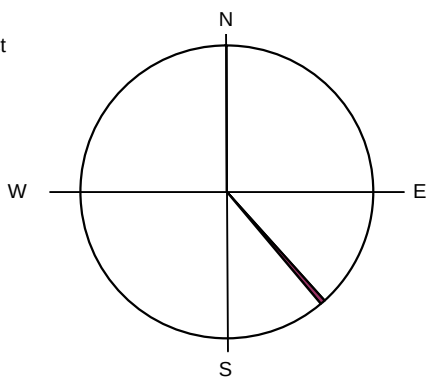
Comparison of Landslide Source Volume and Slope Angle



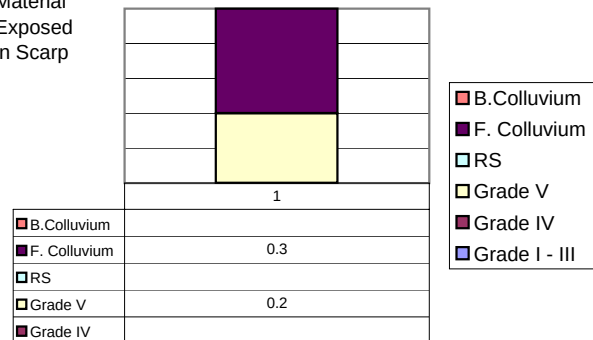
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01L

Mapped by	JAT	Date	9/8/2001	Weather	Very Hot and sunny
Grid Ref.	835390 E		836500 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Heli trip in July 2001		

SOURCE

Length	8	Width	5	Depth	1	Volume	20
B. Colluvium		F. Colluvium		RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		36.1
		Slope Aspect
		165

DEBRIS

() Non-channelised	() Channelised	(X) Not known	() Entrained material
Estimated travel distance	20	Estimated travel angle	30

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	() SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No. 01JKM Date 09/08/01 (Looking NE)



Photo. No. CHK&LNIK Date 9/8/01 (Looking E)

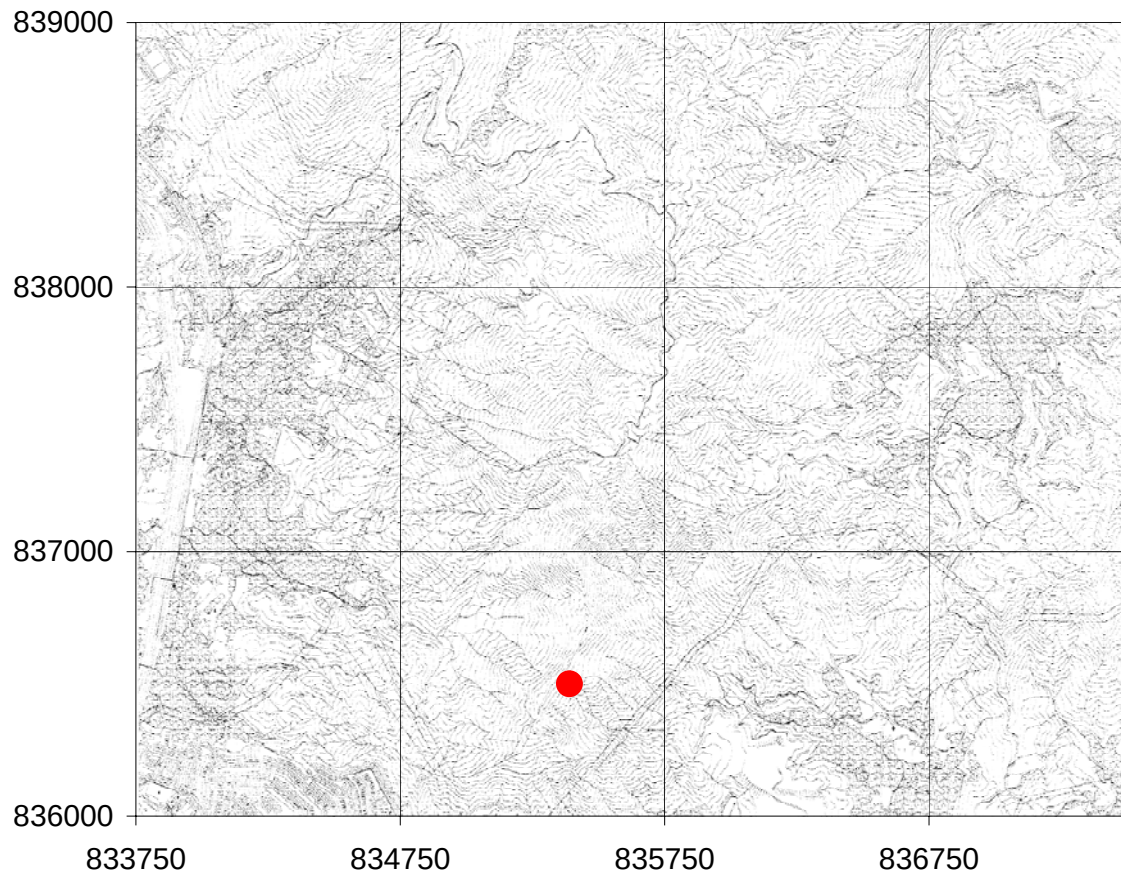


Photo. No. Date / / (Looking)

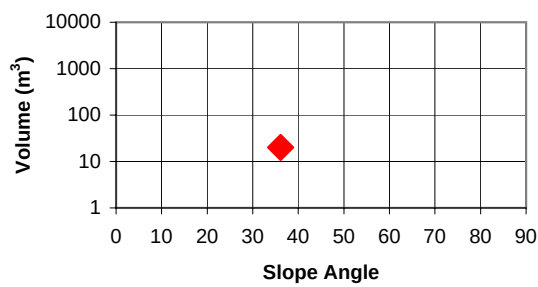
Photo. No. Date / / (Looking)

Landslide Location Plan

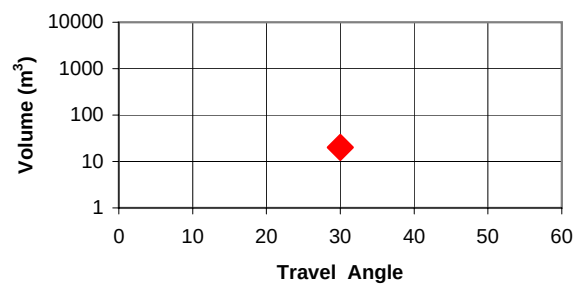
01L



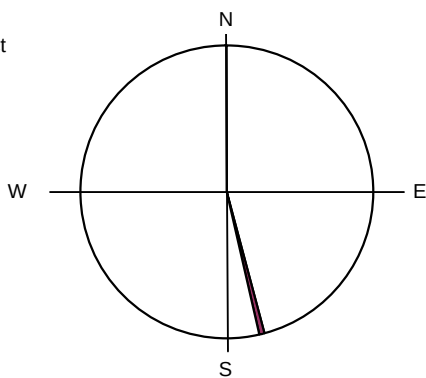
Comparison of Landslide Source Volume and Slope Angle



Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp

	1

- B. Colluvium
- F. Colluvium
- RS
- Grade V
- Grade IV

- B. Colluvium
- F. Colluvium
- RS
- Grade V
- Grade IV
- Grade I - III

Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01M

Mapped by	JAT	Date	9/8/2001	Weather	Very hot and sunny
Grid Ref.	835289 E		836217 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	30	Width	2	Depth	5	Volume	150
B. Colluvium	0.5	F. Colluvium	1.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		25
		Slope Aspect
		170

DEBRIS

(X) Non-channelised	() Channelised	() Not known	() Entrained material
Estimated travel distance	60	Estimated travel angle	25

LANDSLIDE TYPE

() Soil	() Rock	(X) Soil/Rock
() Shallow translational slide	(X) Deep translational slide	() SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	(X) Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
(X) Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

Widening of very large (150 m x 100 m x 5 m) pre-existing failure
Potential hazard to developments at base of drainage channel

FURTHER STUDY (X) Yes () Possible () No particular interest

Photo. No.P8090044 Date 09/08/01 (Looking W)



Photo. No.P8090045 Date 09/08/01 (Looking W)



Photo. No.P8090047 Date 09/08/01 (Looking S)

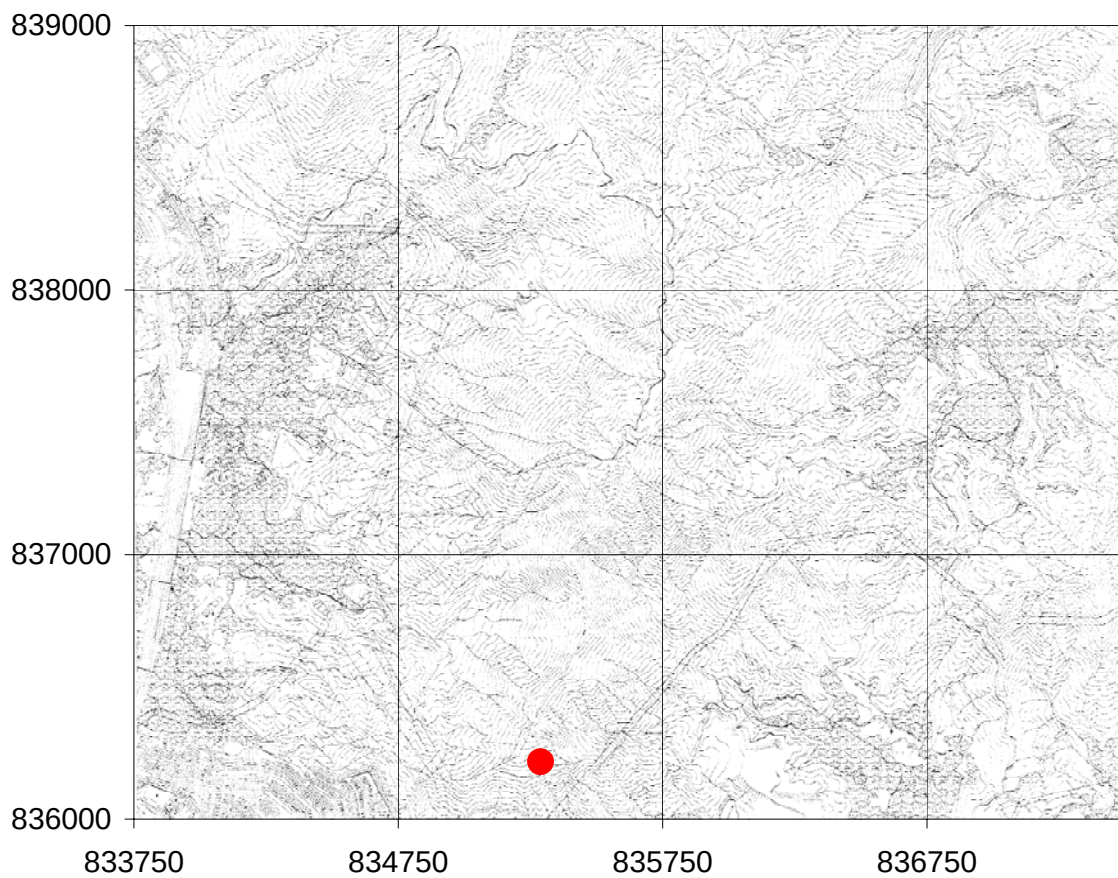


Photo. No.CH01M Date 09/08/01 (Looking NW)

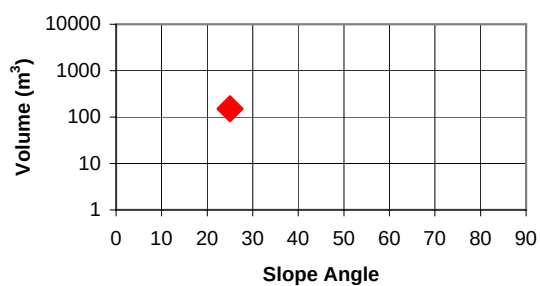


Landslide Location Plan

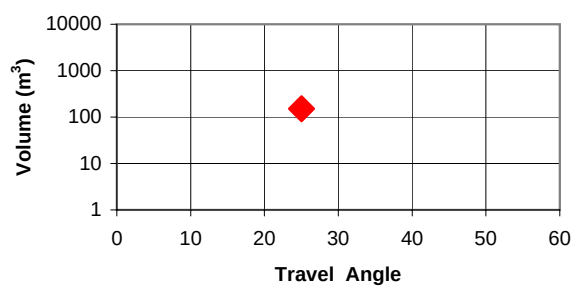
01M



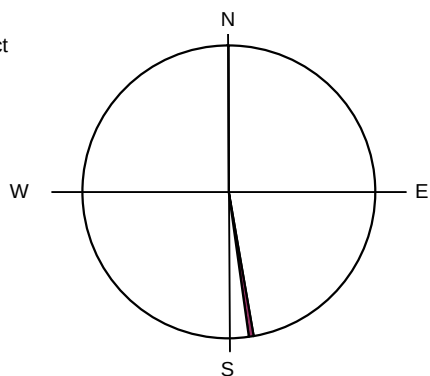
Comparison of Landslide Source Volume and Slope Angle



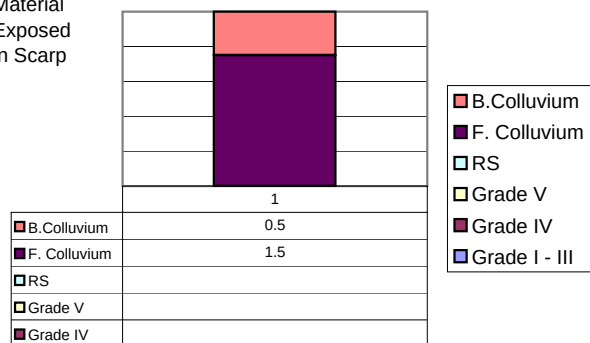
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01Na

Mapped by	DMD	Date	22/08/01	Weather	V Hot
Grid Ref.	835806 E		837816 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip		

SOURCE

Length	12	Width	5	Depth	0.8	Volume	25
B. Colluvium		F. Colluvium	0.8	RS		Grade V	
Grade IV	0.1	Grade I - III		Others			

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		35
		Slope Aspect
		227

DEBRIS

(X) Non-channelised	() Channelised	() Not known	() Entrained material
Estimated travel distance	30	Estimated travel angle	25

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

(X) Man-made disturbance (Poss)	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes: GEO Incident N° ME2001/06/47
several quartz veins up to 15 mm across
Cut slope at toe

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No. 00&01 Close Date 07/07/01 (Looking N)	Photo. No. P8220038 Date 22/08/01 (Looking NE)
--	--

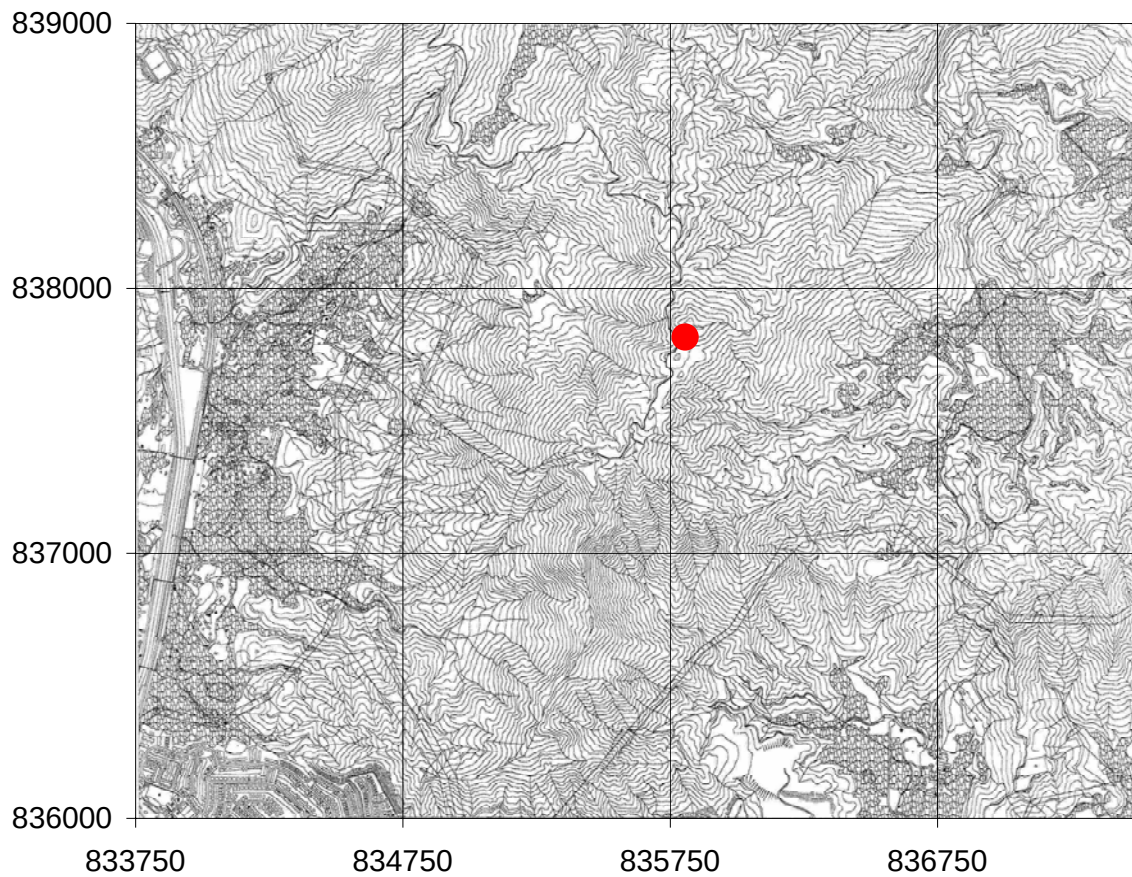


Photo. No. P8220039 Date 22/08/01 (Looking SW)	Photo. No. Date / / (Looking)
--	--------------------------------

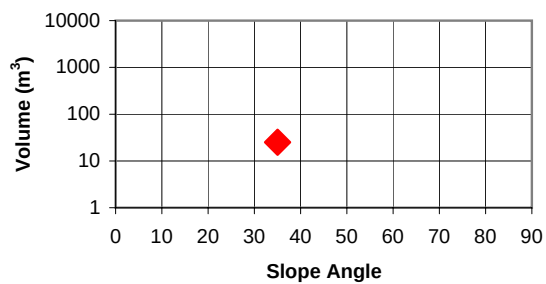


Landslide Location Plan

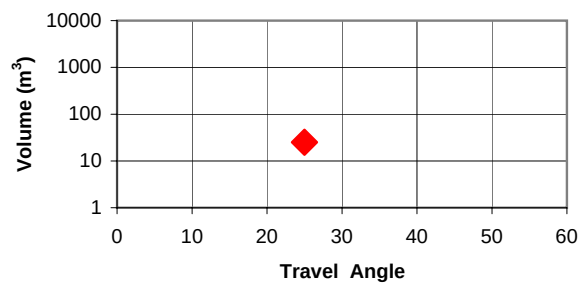
01Na



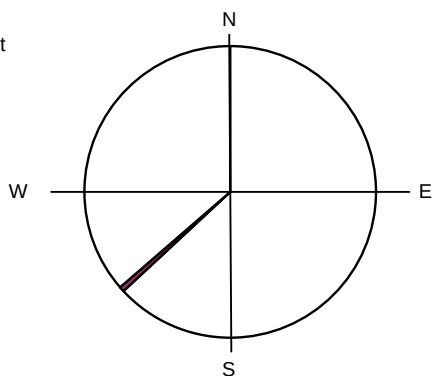
Comparison of Landslide Source Volume and Slope Angle



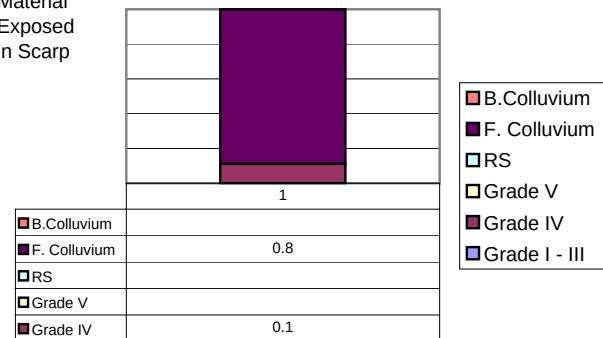
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01N

Mapped by	DMD	Date	22/08/01	Weather	Very Hot and sunny
Grid Ref.	835837 E		837836 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	20	Width	42	Depth	1.5	Volume	630
B. Colluvium	1	F. Colluvium	0.5	RS		Grade V	
Grade IV	0.2	Grade I - III		Others	Layered Colluvium		

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		24
		Slope Aspect
		210

DEBRIS

() Non-channelised	(X) Channelised (Partial)	() Not known	() Entrained material
Estimated travel distance	100	Estimated travel angle	20

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	(X) Tension cracks	(X) Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	(X) Erosion pipes

Notes:

Possible Structural control along quartz veins (up to 60 mm thick)
Partially detached landslide

FURTHER STUDY (X) Yes () Possible () No particular interest

Photo. No. P8090010 Date 08/09/01 (Looking North)

Photo. No. CH00&01 Date 09/07/01 (Looking N)



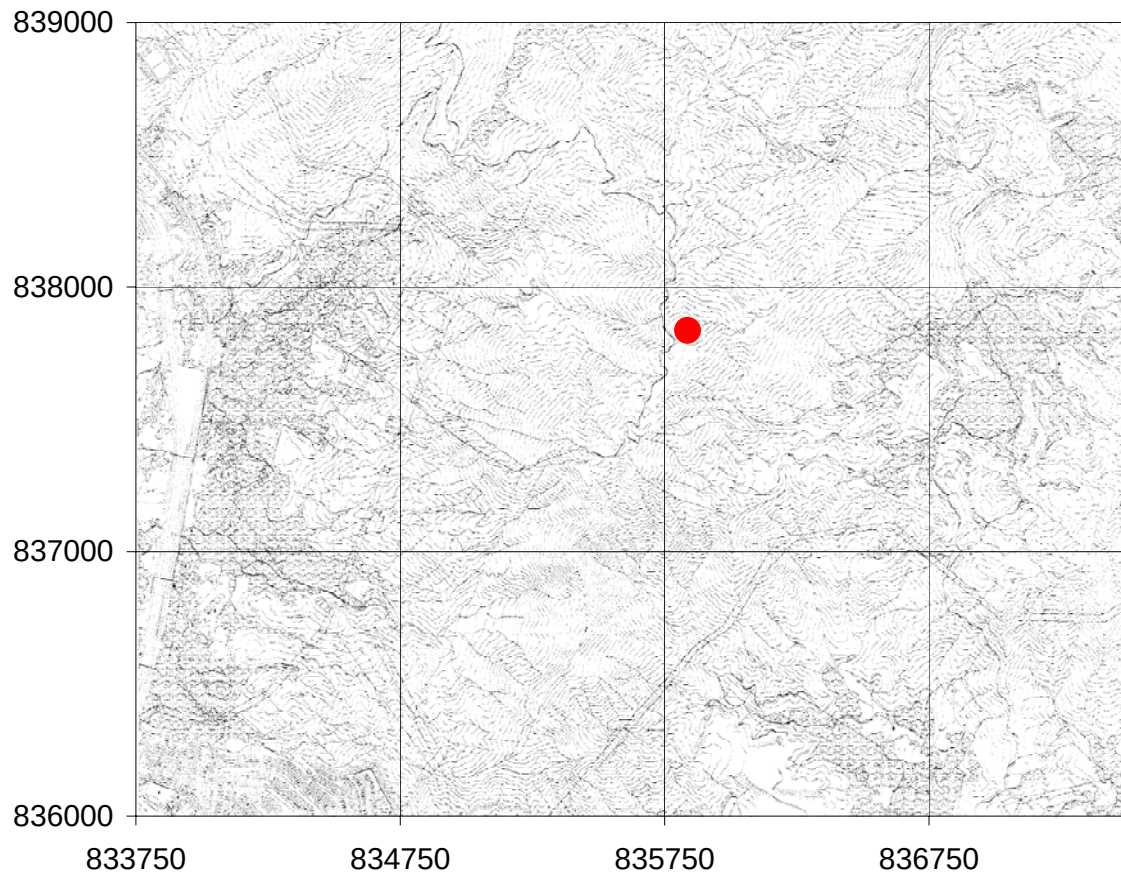
Photo. No. P8220042 Date 22/08/01 (Looking Northeast)

Photo. No. P8220043 Date 22/08/01 (Looking Southeast)

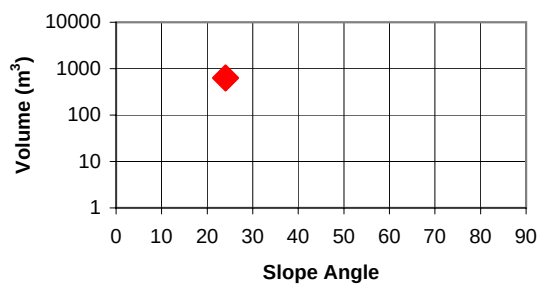


Landslide Location Plan

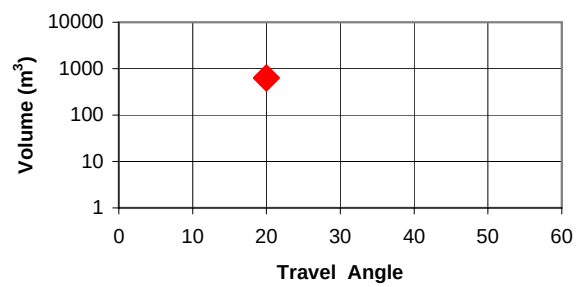
01N



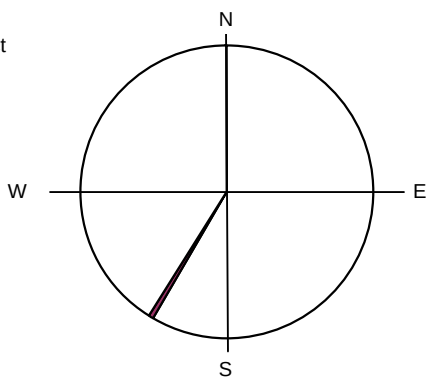
Comparison of Landslide Source Volume and Slope Angle



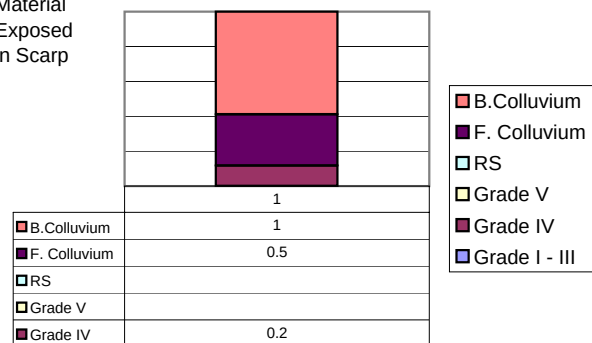
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01Q

Mapped by	DMD	Date	22/08/01	Weather	V hot
Grid Ref.	835832 E		838227 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	10	Width	8	Depth	0.5	Volume	20
B. Colluvium		F. Colluvium	0.5	RS		Grade V	
Grade IV	0.1	Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		35
		Slope Aspect
		265

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	30	Estimated travel angle	18

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

(X) Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	(X) Erosion pipes

Notes:

Cut slope at toe, debris contained by cutting for road

FURTHER STUDY () Yes (X) Possible () No particular interest

Photo. No. P8220071 Date 22/08/01 (Looking NE)



Photo. No. CH01Q Date 07/07/01 (Looking E)



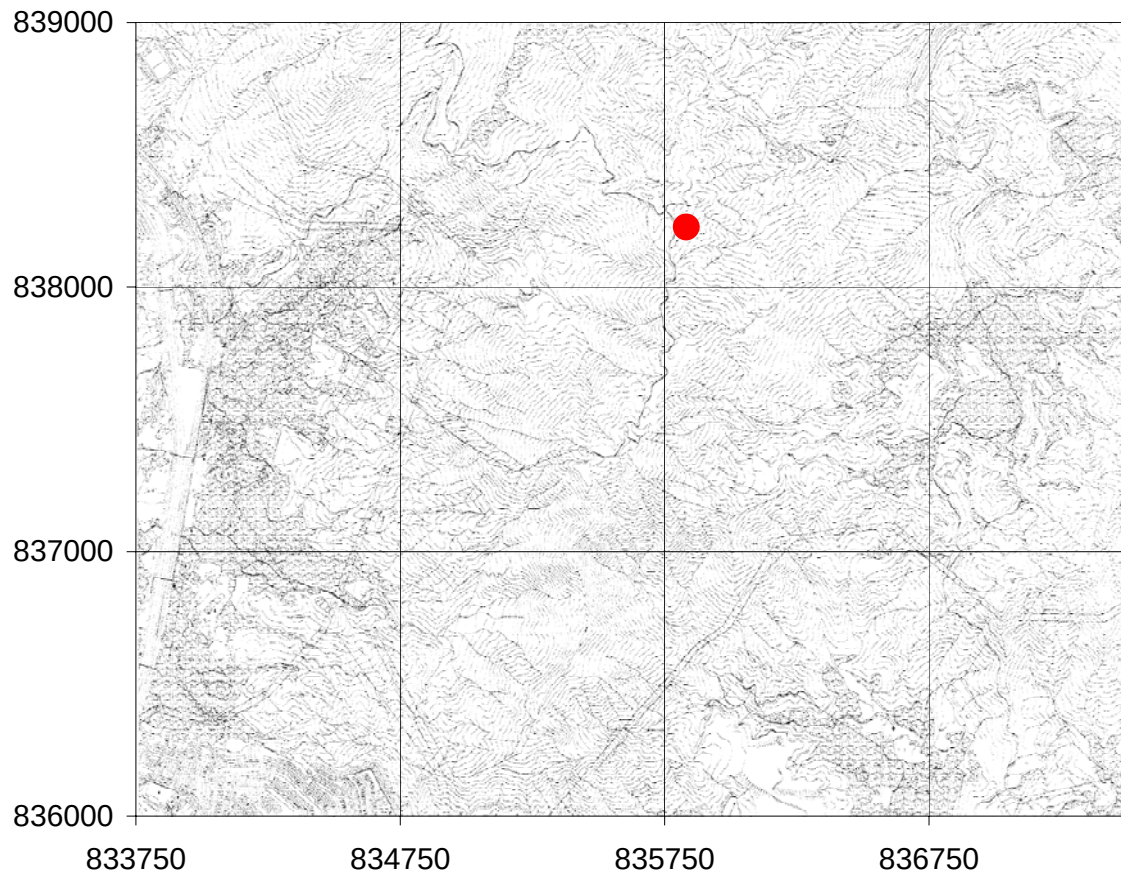
Photo. No. P8220072 Date 22/08/01 (Looking W)



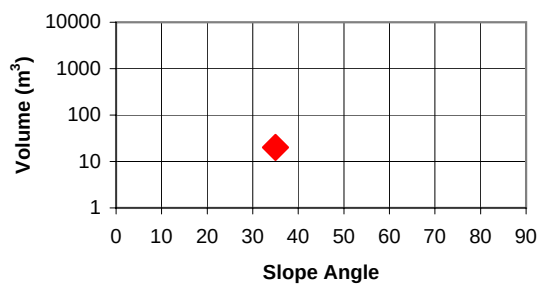
Photo. No. Date / / (Looking)

Landslide Location Plan

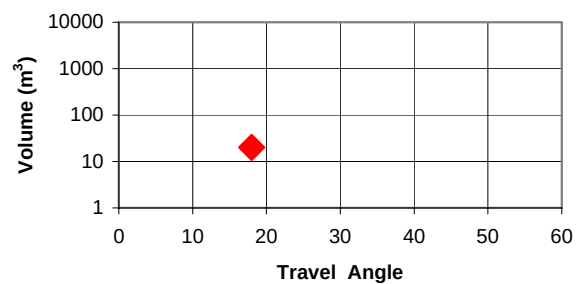
01Q



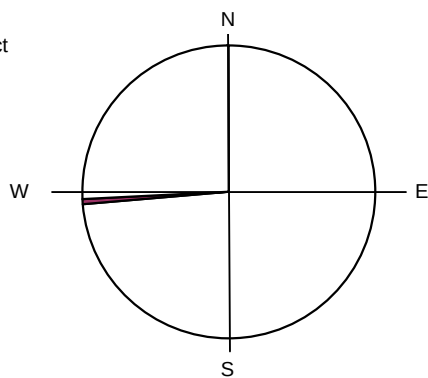
Comparison of Landslide Source Volume and Slope Angle



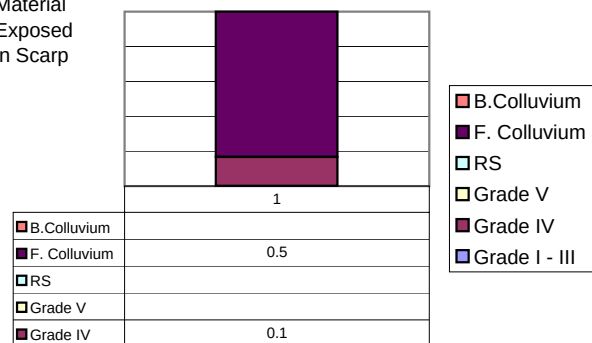
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01S

Mapped by	DMD	Date	22/08/01	Weather	V hot and sunny
Grid Ref.	835910 E		838313 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	15	Width	10	Depth	0.8	Volume	60
B. Colluvium	0.6	F. Colluvium	0.2	RS		Grade V	
Grade IV	0.2	Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	(X) Below ridgeline	Slope angle
		38
		Slope Aspect
		120

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	80	Estimated travel angle	28

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	(X) Deterioration of rock mass (poss)	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

Quartz Veins up to 60 mm thick

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No.P8220058 Date 22/08/01 (Looking North)



Photo. No.P8220063 Date 22/08/01 (Looking North)



Photo. No.P8220065 Date 22/08/01 (Looking North)

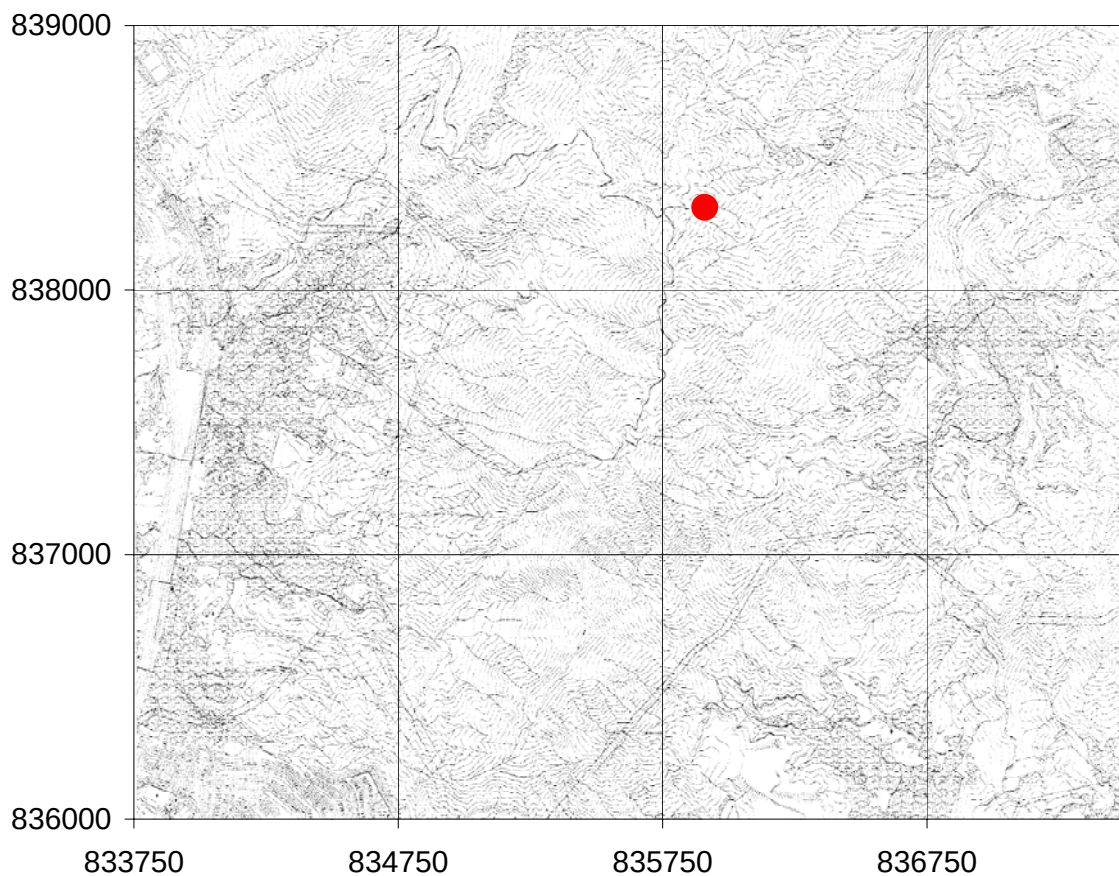


Photo. No.P8220067 Date 22/08/01 (Looking East)

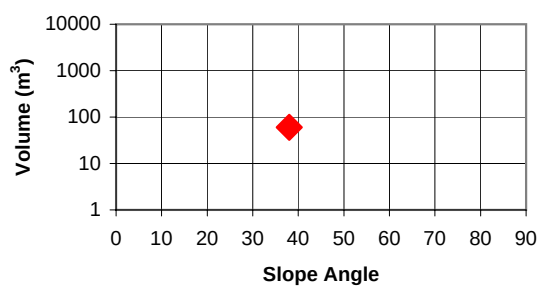


Landslide Location Plan

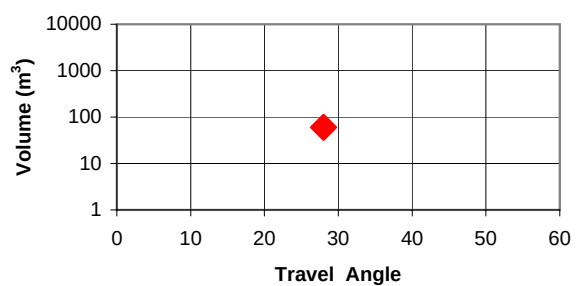
01S



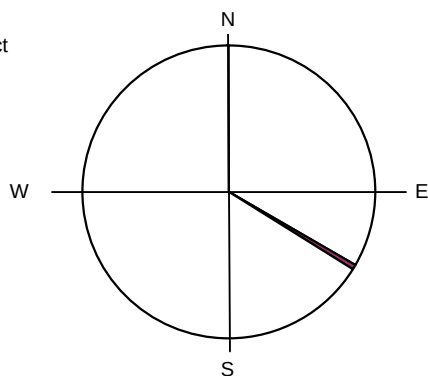
Comparison of Landslide Source Volume and Slope Angle



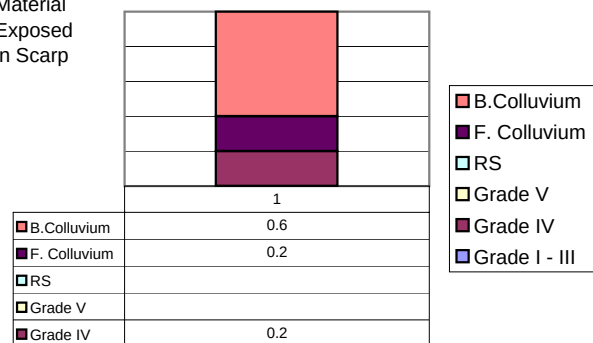
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01Sa

Mapped by	DMD	Date	22/08/01	Weather	V Hot
Grid Ref.	835857 E		838195 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	15	Width	11	Depth	1	Volume	82.5
B.Colluvium		F. Colluvium	1	RS		Grade V	
Grade IV	0.2	Grade I - III	0.1	Others	Occasional angular boulders		

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		40
		Slope Aspect
		100

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	50	Estimated travel angle	24

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
(X) Evidence of previous movement (Pos)	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

Minor Quartz veins

FURTHER STUDY () Yes (X) Possible () No particular interest

Photo. No.01TUV Date 07/07/01 (Looking S)

Landslide 01Sa →



Photo. No. P8220057 Date 22/08/01 (Looking N)

Landslide 01Sa →



Photo. No.P8220059 Date 22/08/01 (Looking NE)

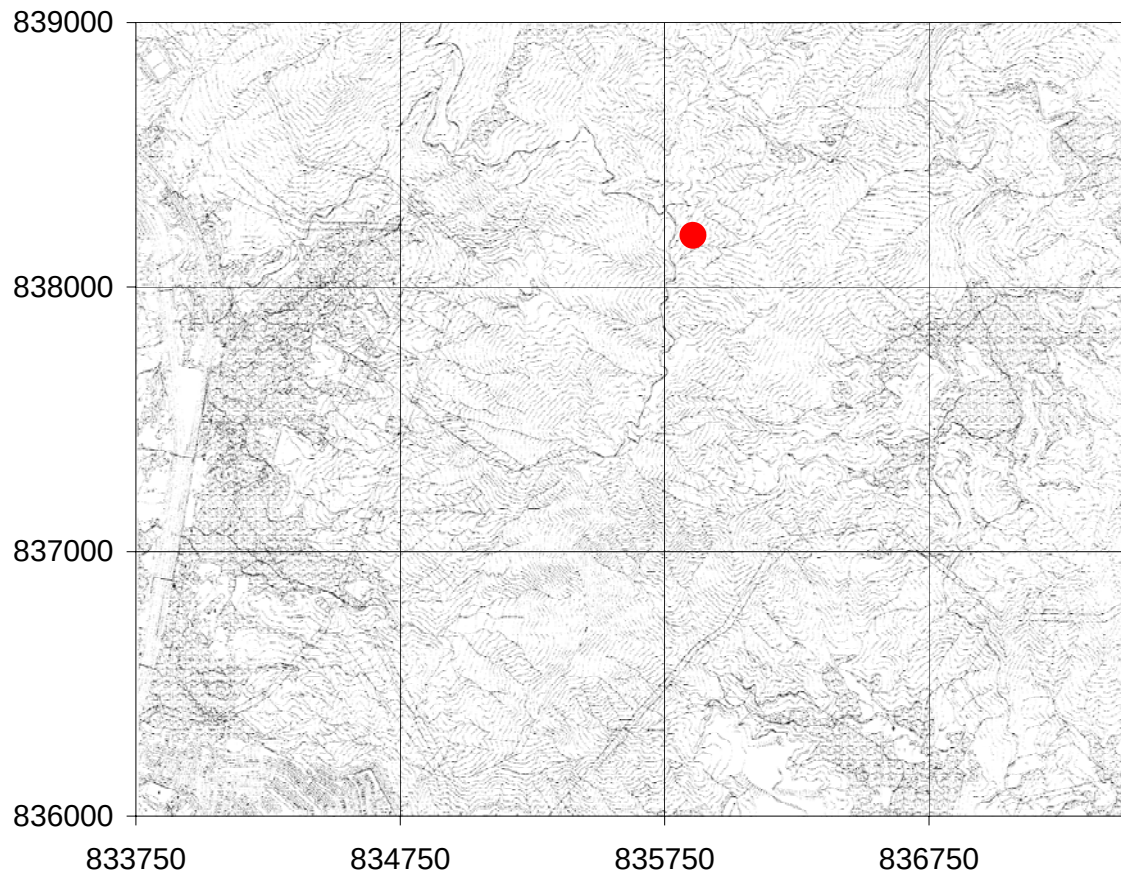


Photo. No.P8220061 Date 22/08/01 (Looking E)

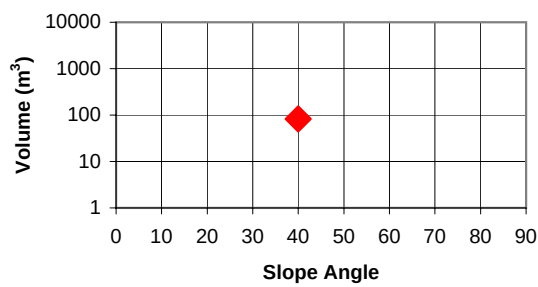


Landslide Location Plan

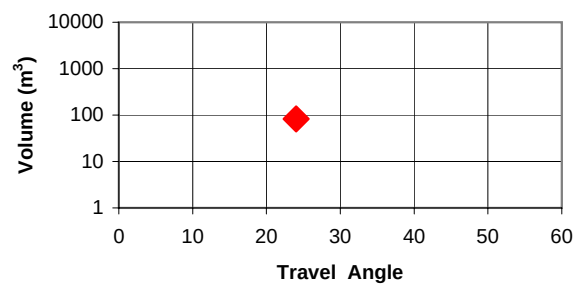
01Sa



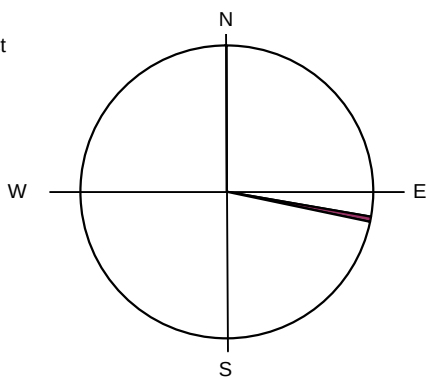
Comparison of Landslide Source Volume and Slope Angle



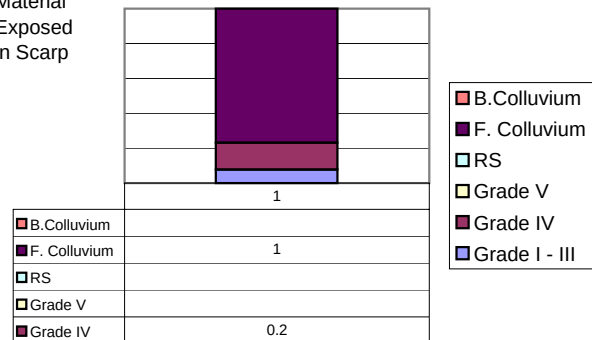
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01Sb

Mapped by	DMD	Date	22/08/01	Weather	V Hot
Grid Ref.	835578 E		838238 N	() GPS	(X) Estimated
Date of failure	Jun-01	Evidence	Helicopter Trip in July 2001		

SOURCE

Length	15	Width	8	Depth	1	Volume	60
B. Colluvium	0.2	F. Colluvium	0.8	RS		Grade V	
Grade IV	1	Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		36
		Slope Aspect
		85

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	50	Estimated travel angle	32

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

FURTHER STUDY () Yes (X) Possible () No particular interest

Photo. No. CH01TUV Date 07/07/01 (Looking South)



Photo. No. P8220069 Date 22/08/01 (Looking south)

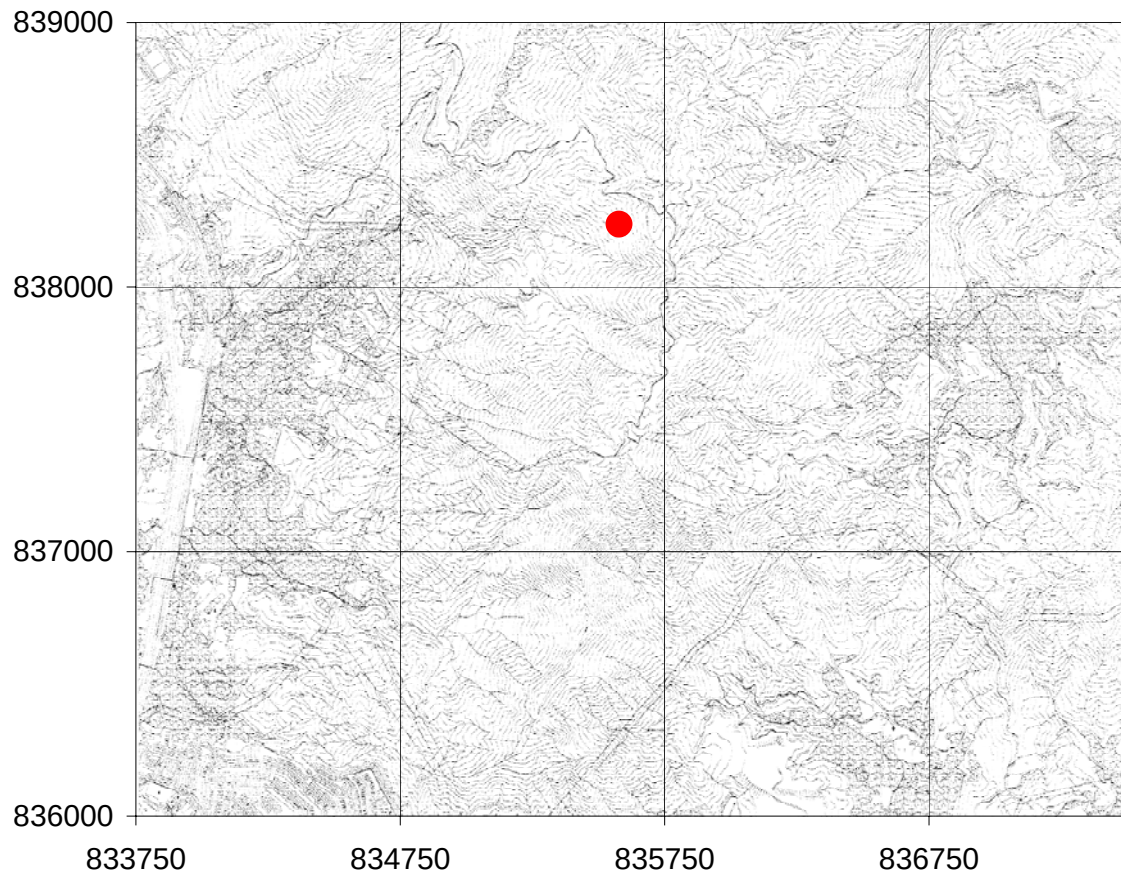


Photo. No. Date / / (Looking)

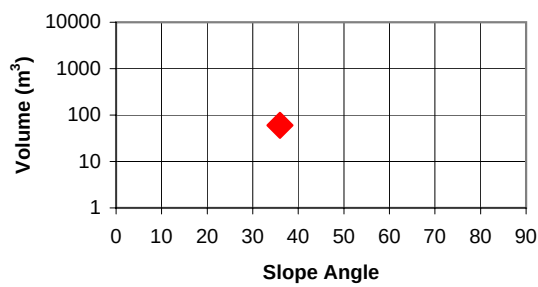
Photo. No. Date / / (Looking)

Landslide Location Plan

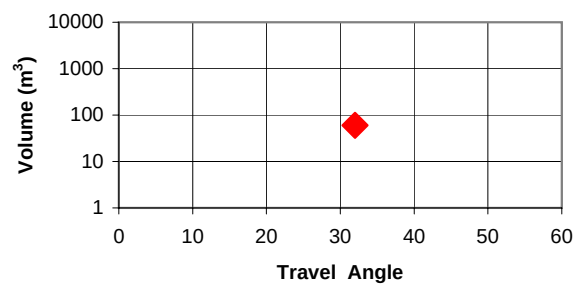
01Sb



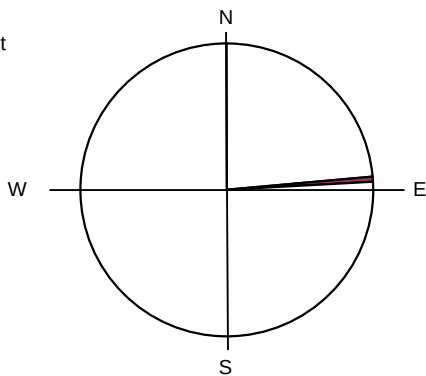
Comparison of Landslide Source Volume and Slope Angle



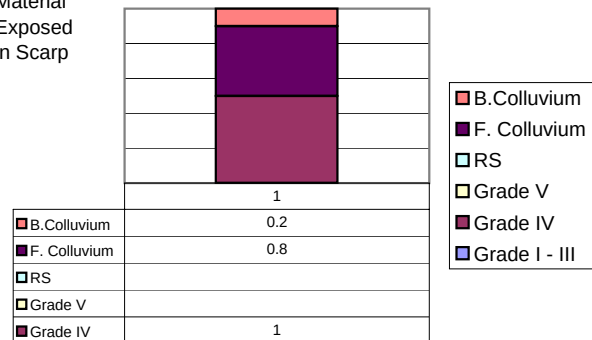
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01W

Mapped by	DMD	Date	22/08/01	Weather	V Hot
Grid Ref.	835818 E		838586 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July		

SOURCE

Length	30	Width	15	Depth	1	Volume	225
B.Colluvium	0.8	F. Colluvium	0.2	RS		Grade V	
Grade IV	0.1	Grade I - III	0.1	Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	(X) Below ridgeline	Slope angle
		40
		Slope Aspect
		325

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	100	Estimated travel angle	35

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

(X) Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	(X) Deterioration of rock mass	() Seepage
() Within scar of relict failure	(X) Infilled joints	(X) Erosion pipes

Notes:

Wilson trail footpath crosses landslide near toe
Very large boulders within the bouldery colluvium (>3 m across)

FURTHER STUDY (X) Yes () Possible () No particular interest

Photo. No.CH01WXCC Date 22/08/01 (Looking SE)



Photo. No.P8220077 Date 22/08/01 (Looking E)



Photo. No.P8220076 Date 22/08/01 (Looking E)

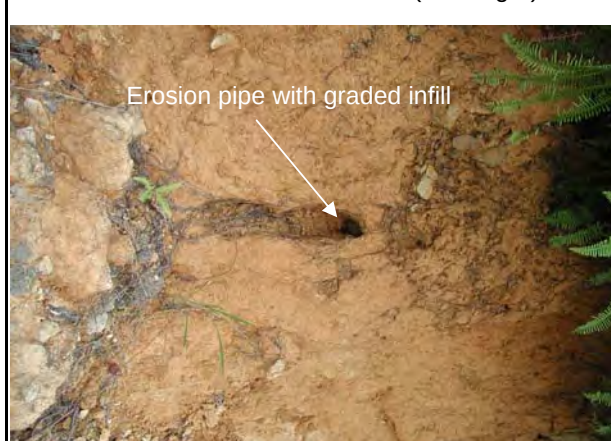
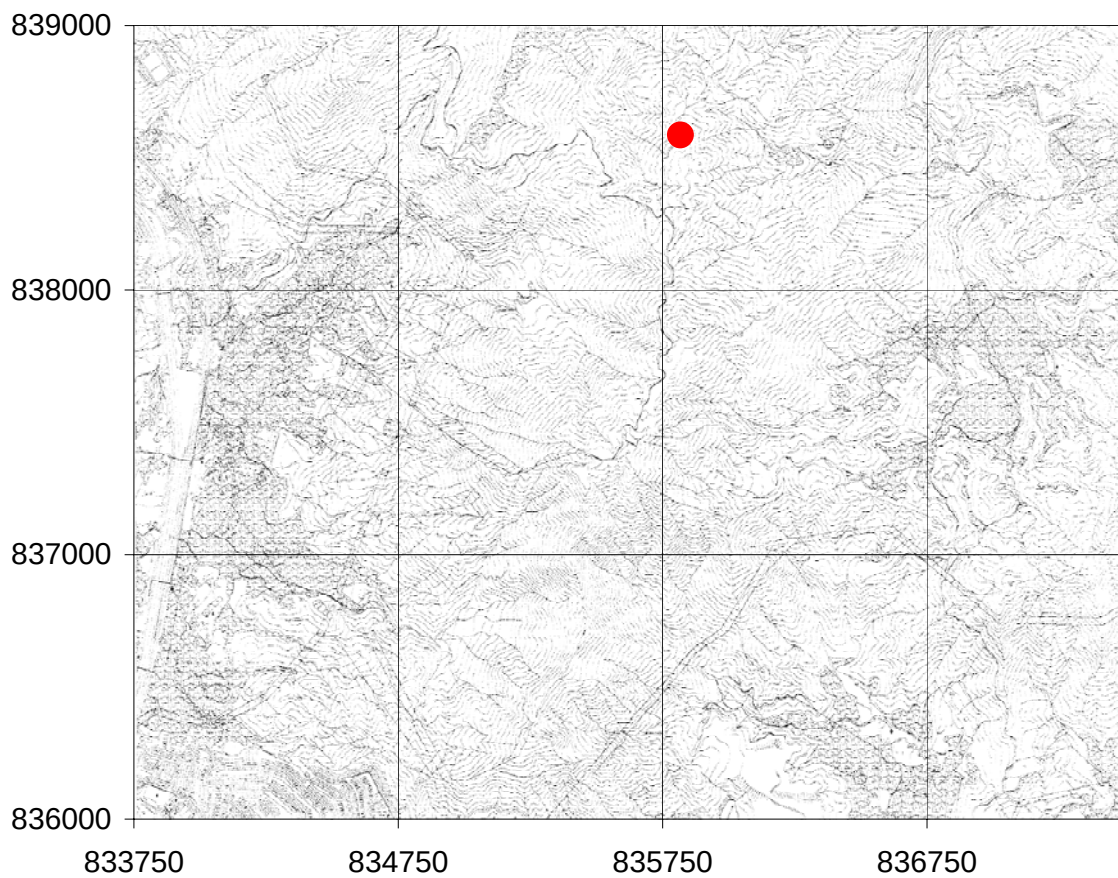


Photo. No.P8220078 Date 22/08/01 (Looking E)

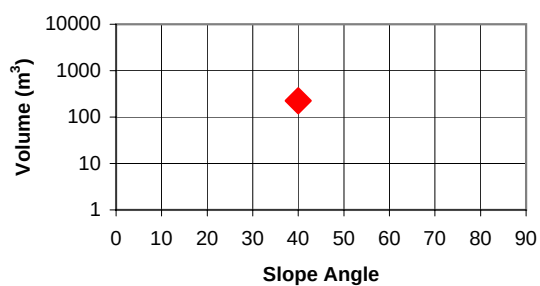


Landslide Location Plan

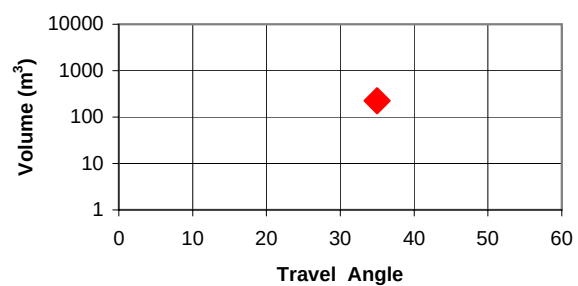
01W



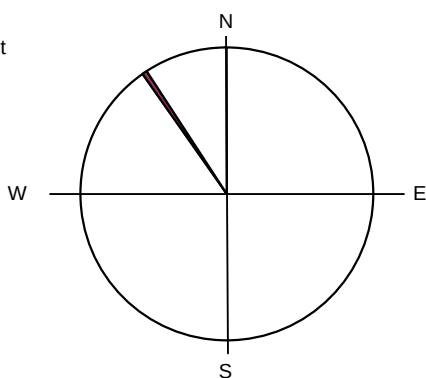
Comparison of Landslide Source Volume and Slope Angle



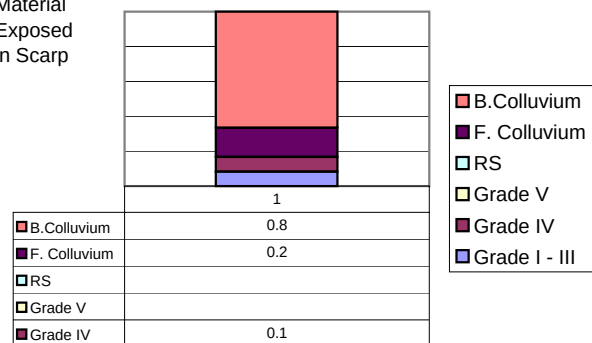
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01X

Mapped by	JAT	Date	9/7/2001	Weather	Cloudy
Grid Ref.	835755 E		838552 N	() GPS	(X) Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	20	Width	12	Depth	1	Volume	120
B. Colluvium	0.2	F. Colluvium	0.8	RS		Grade V	0.1
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		34
		Slope Aspect
		325

DEBRIS

() Non-channelised	(X) Channelised	() Not known	() Entrained material
Estimated travel distance	80	Estimated travel angle	23

LANDSLIDE TYPE

() Soil	() Rock	(X) Soil/Rock
() Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

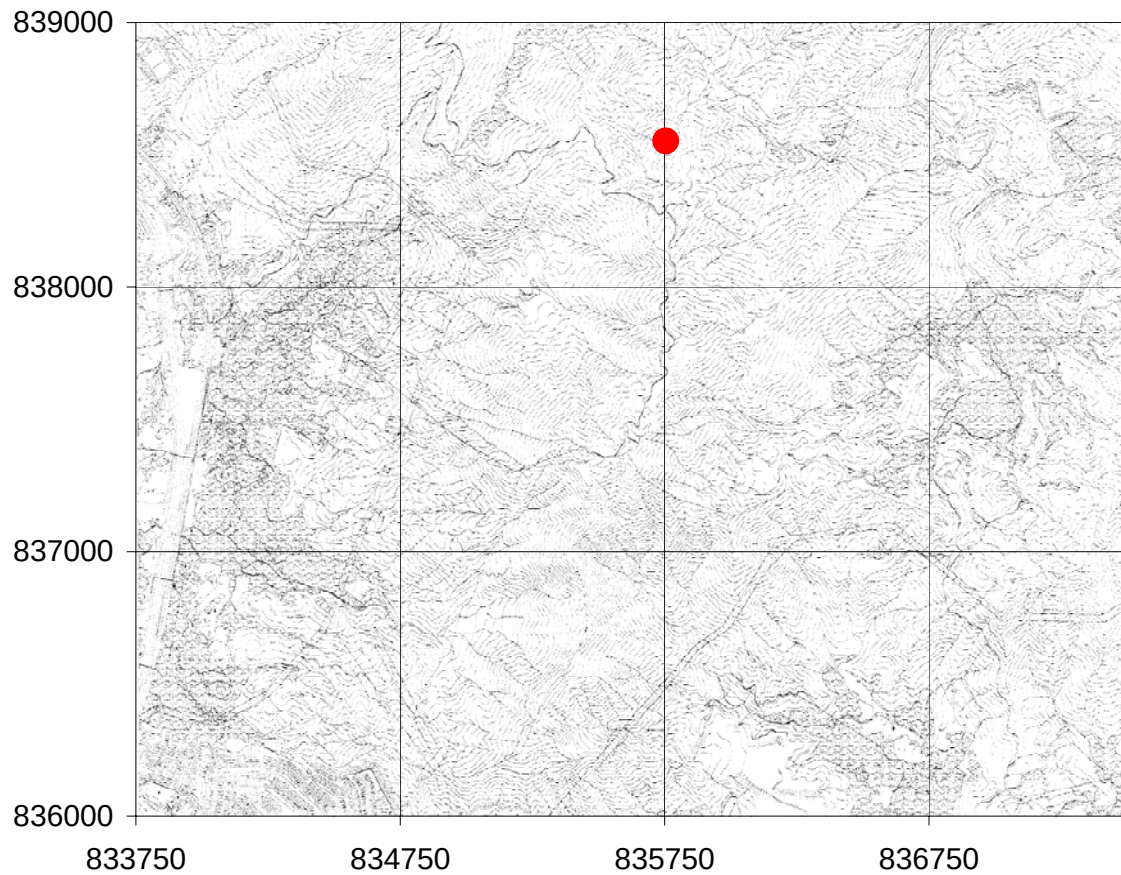
No access due to dense vegetation and steep terrain

FURTHER STUDY () Yes (X) Possible () No particular interest

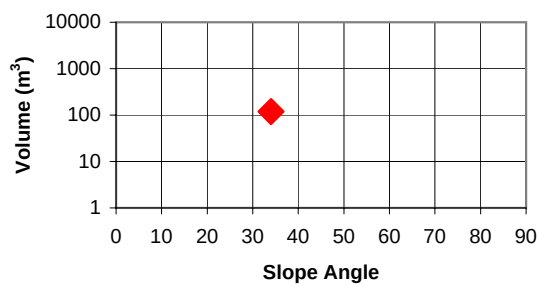
Photo No. CH01WXCC Date 9/7/01 (Looking SE)	Photo. No. Date / / (Looking)
	
	Photo. No. Date / / (Looking)

Landslide Location Plan

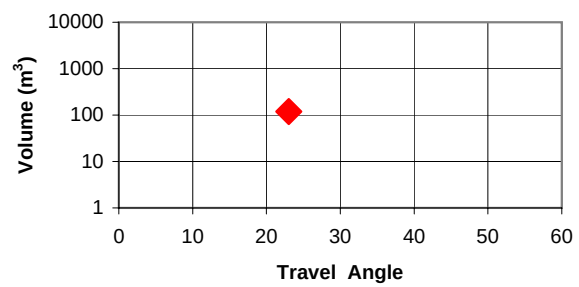
01X



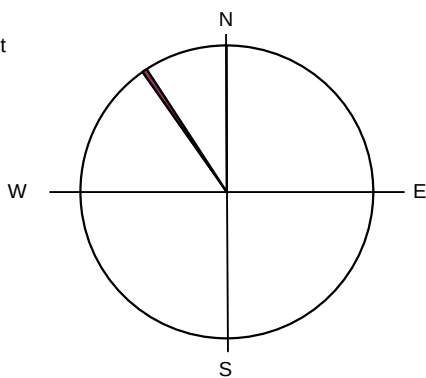
Comparison of Landslide Source Volume and Slope Angle



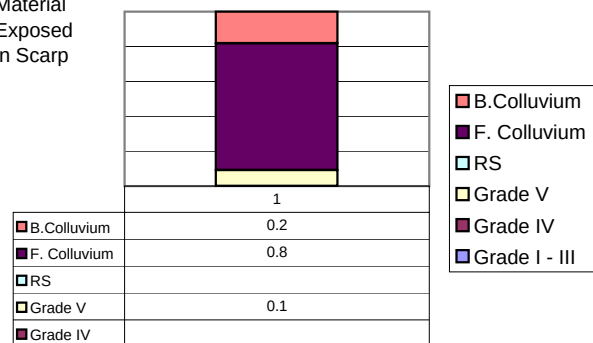
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01Y

Mapped by	JAT	Date	9-Jul-01	Weather	Cloudy
Grid Ref.	835406 E		838322 N	() GPS	(X) Estimated
Date of failure	Jun-01	Evidence	helicopter trip		

SOURCE

Length	8	Width	14	Depth	1	Volume	56
B. Colluvium		F. Colluvium	0.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		30
		Slope Aspect
		206

DEBRIS

() Non-channelised	() Channelised	(X) Not known	() Entrained material
Estimated travel distance	10	Estimated travel angle	28

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
(X) Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

No access due to dense vegetation

FURTHER STUDY () Yes (X) Possible () No particular interest

Photo. No. CH01QRWXCC Date 09/07/01 (Looking E) Photo. No. P8220053 Date 22/08/01 (Looking NW)

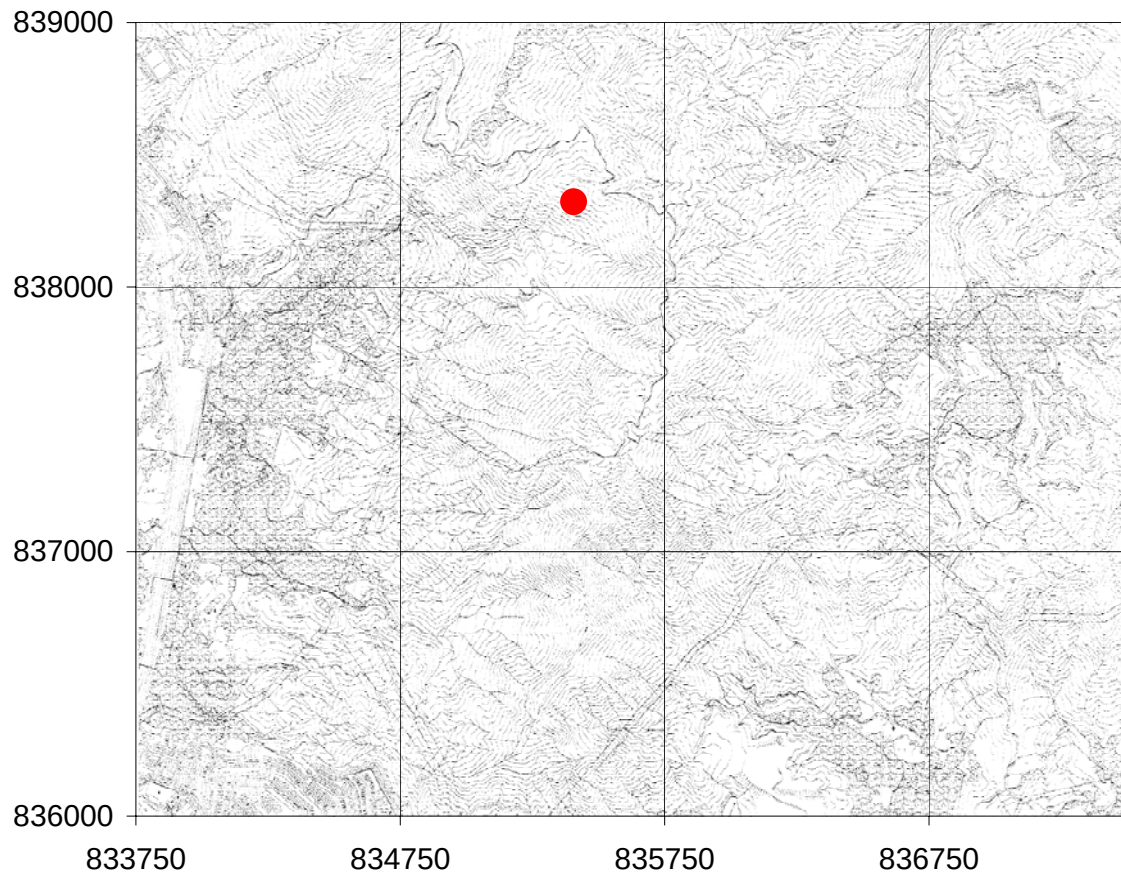


Photo. No. Date / / (Looking)

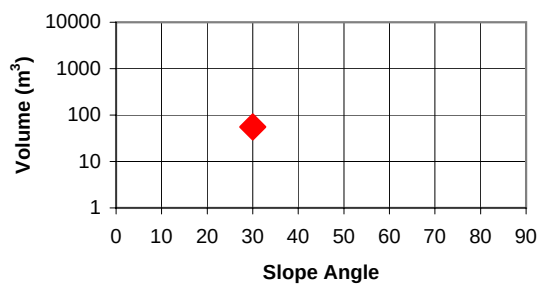
Photo. No. Date / / (Looking)

Landslide Location Plan

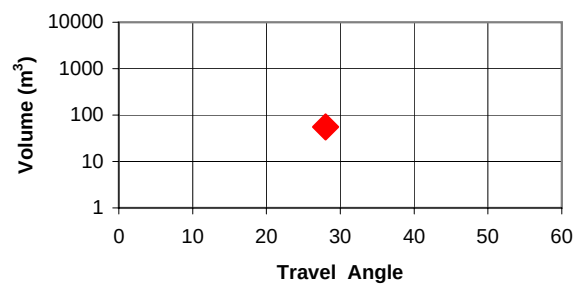
01Y



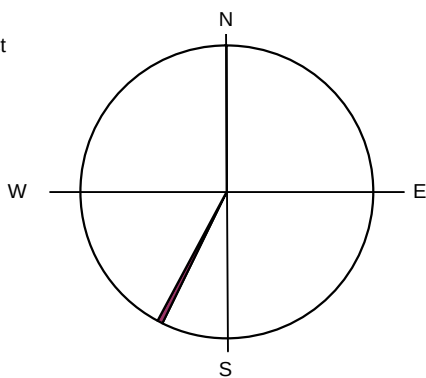
Comparison of Landslide Source Volume and Slope Angle



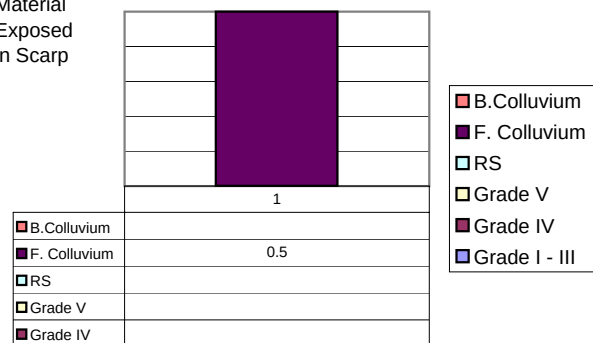
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01DD

Mapped by	DMD/JAT	Date	7/9/2001	Weather	Cloudy
Grid Ref.	836078 E		838638 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Heli trip		

SOURCE

Length	15	Width	7.4	Depth	0.3	Volume	16.65
B. Colluvium		F. Colluvium	0.3	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	() Head drainage channel	(X) Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle
		35
		Slope Aspect
		225

DEBRIS

(X) Non-channelised	() Channelised	() Not known	() Entrained material
Estimated travel distance	60	Estimated travel angle	28

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
() Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	(X) Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	(X) Erosion pipes

Notes:

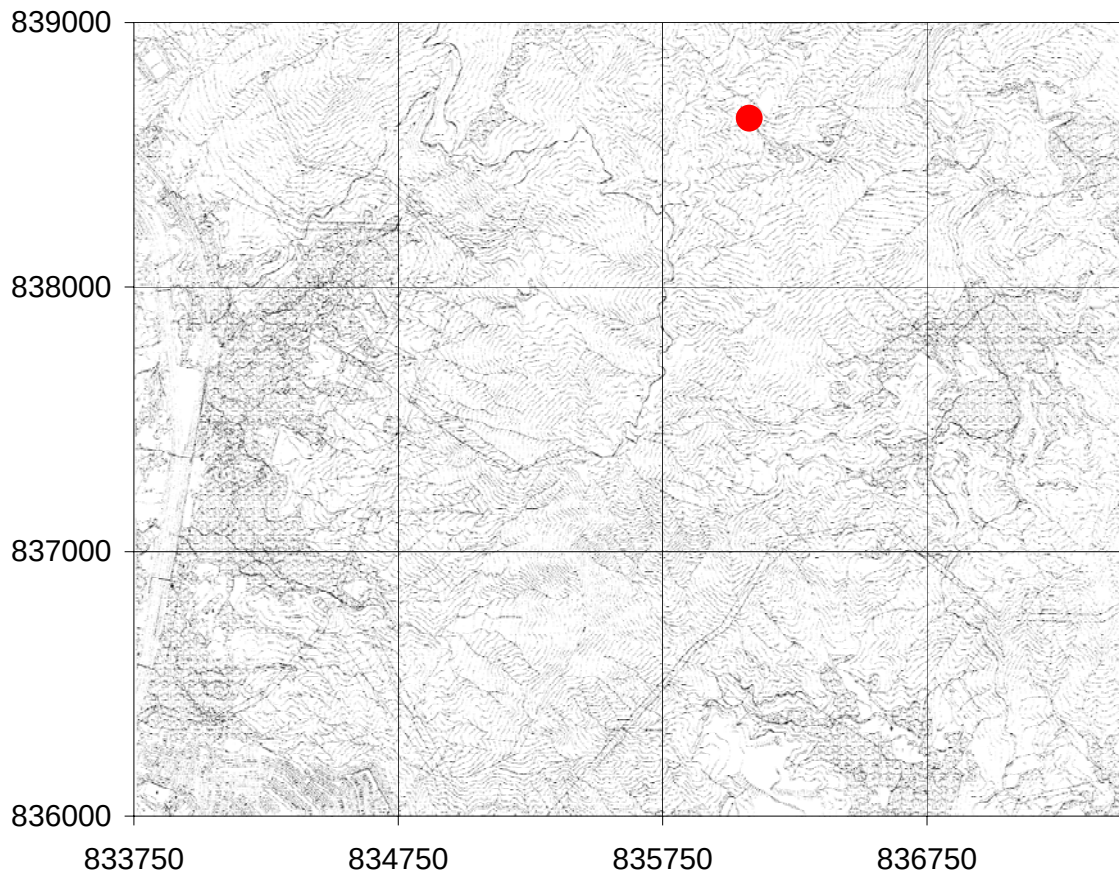
Landslide trail has affected a footpath

FURTHER STUDY () Yes (X) Possible () No particular interest

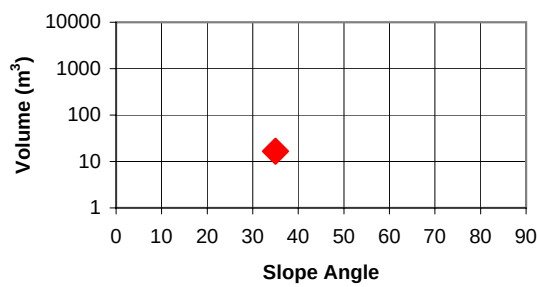
Photo. No. CH01EE Date 7/9/01 (Looking SE)	Photo. No. Date / / (Looking)
	
Photo. No. P7070028 Date 7/9/01 (Looking E)	Photo. No. P70700030 Date 7/9/01 (Looking E)
	

Landslide Location Plan

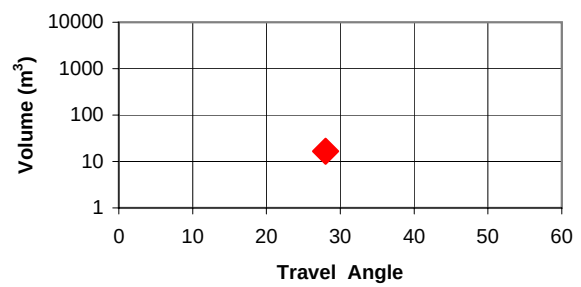
01DD



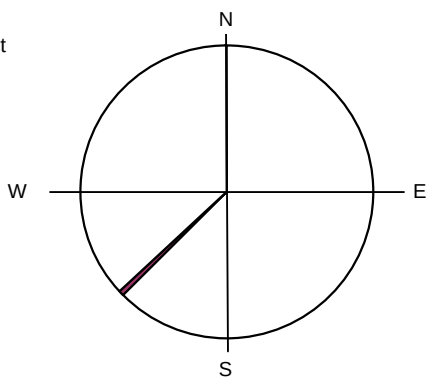
Comparison of Landslide Source Volume and Slope Angle



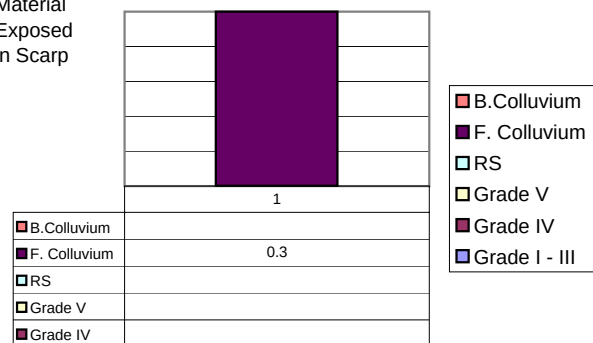
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01DDa

Mapped by	DMD/JAT	Date	7/9/2001	Weather	Cloudy
Grid Ref.	835978 E		838636 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Heli Trip		

SOURCE

Length	12	Width	8	Depth	0.5	Volume	24
B. Colluvium		F. Colluvium	0.5	RS		Grade V	
Grade IV		Grade I - III		Others			

LOCATION

(X) Open hillside	() Head drainage channel	() Flank drainage channel
() Below exposed rock	() Below ridgeline	Slope angle 40
		Slope Aspect 50

DEBRIS

(X) Non-channelised	() Channelised	() Not known	() Entrained material
Estimated travel distance		Estimated travel angle	

LANDSLIDE TYPE

(X) Soil	() Rock	() Soil/Rock
() Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Structural control	() Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	() Deterioration of rock mass	() Seepage
() Within scar of relict failure	() Infilled joints	() Erosion pipes

Notes:

Difficult access, viewed from across valley

FURTHER STUDY () Yes () Possible (X) No particular interest

Photo. No. CH01EE Date 7/9/01 (Looking SE)



Photo. No. P7070010 Date 7/9/01 (Looking SW)

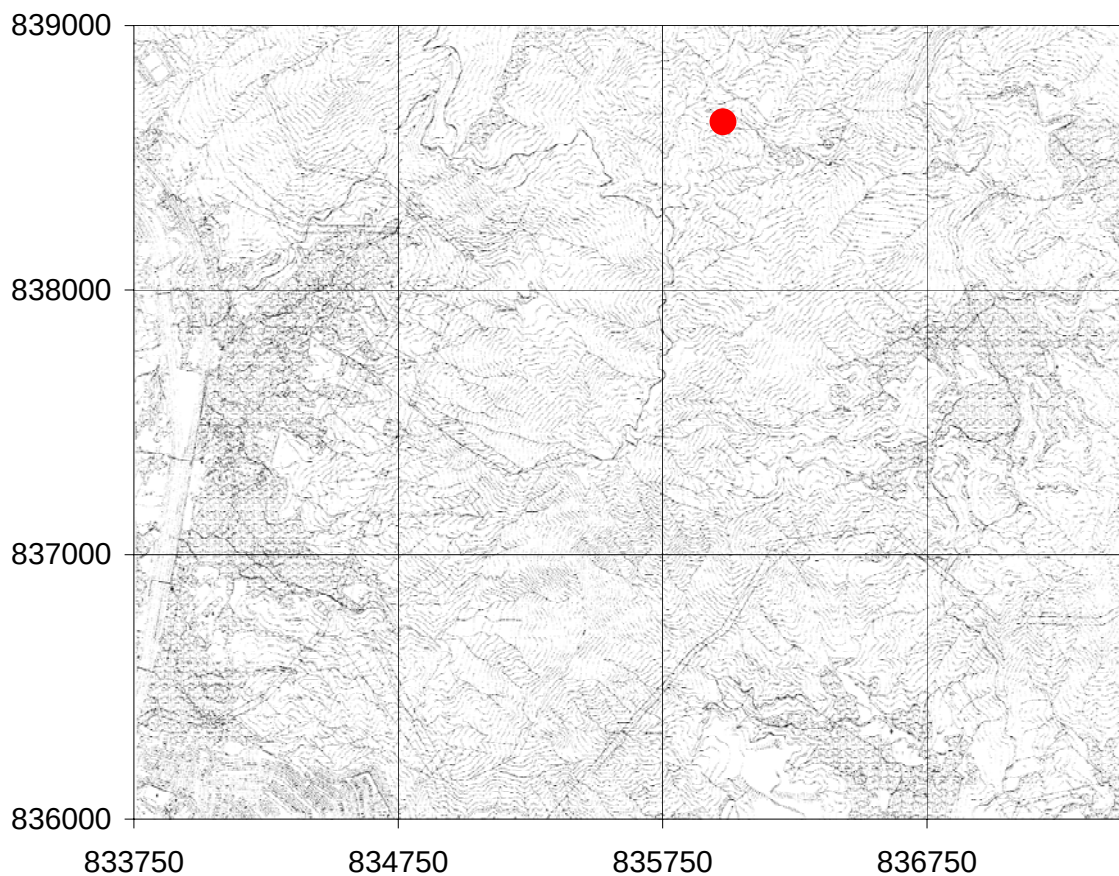


Photo. No. / / (Looking)

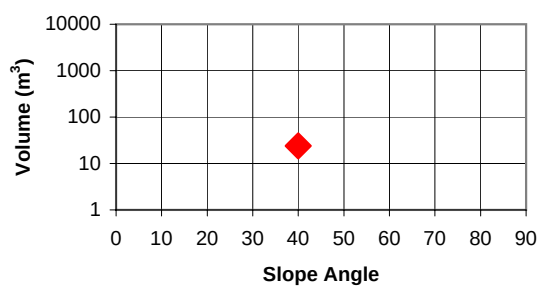
Photo. No. / / (Looking)

Landslide Location Plan

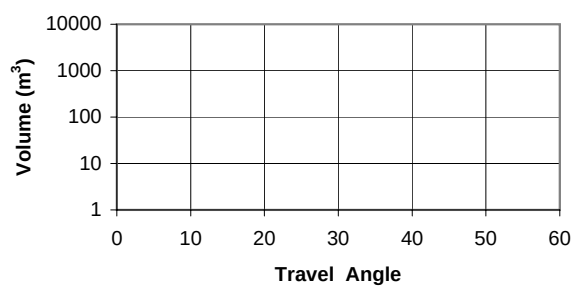
01DDa



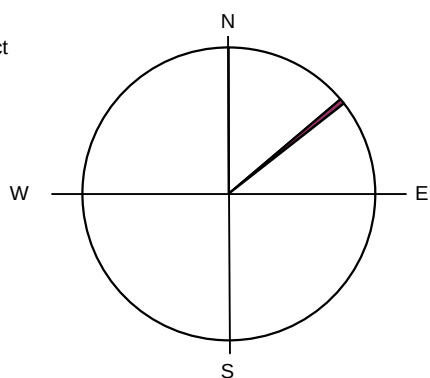
Comparison of Landslide Source Volume and Slope Angle



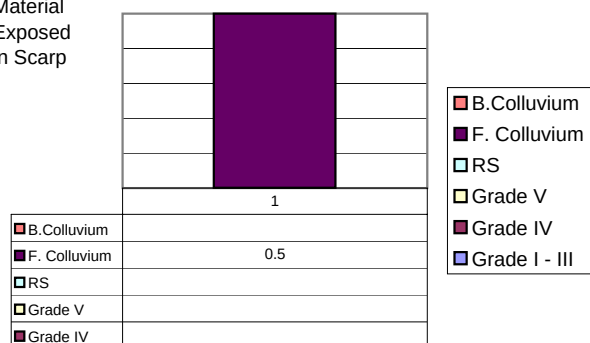
Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp



Landslide Investigation Consultancy Agreement No. CE 2/2000

Landslide No.

Landslide Reconnaissance Field Proforma - Cloudy Hill

01EE

Mapped by	DMD/JAT	Date	7/9/2001	Weather	Cloudy
Grid Ref.	836124 E		838727 N	(X) GPS	() Estimated
Date of failure	Jun-01	Evidence	Helicopter trip in July 2001		

SOURCE

Length	15	Width	12	Depth	1	Volume	90
B. Colluvium	0.2	F. Colluvium	0.8	RS		Grade V	0.2
Grade IV		Grade I - III		Others			

LOCATION

() Open hillside	(X) Head drainage channel	() Flank drainage channel
() Below exposed rock	(X) Below ridgeline	Slope angle
		35
		Slope Aspect
		0

DEBRIS

() Non-channelised	(X) Channelised	() Not known	(X) Entrained material
Estimated travel distance	180	Estimated travel angle	12

LANDSLIDE TYPE

() Soil	() Rock	(X) Soil/Rock
() Shallow translational slide	() Deep translational slide	(X) SOR at Colluvium/Rock interface
() Planar	() Topple	() Wedge
() Partial Structural control	(X) Partial structural control	

GENERAL OBSERVATIONS

() Man-made disturbance	() Tension cracks	() Post failure widening
() Evidence of previous movement	(X) Deterioration of rock mass	() Seepage
() Within scar of relict failure	(X) Infilled joints	() Erosion pipes

Notes:

Long trail, Prominent structural control on joint surface on western flank

FURTHER STUDY (X) Yes () Possible () No particular interest

Photo. No.CH01EE Date 09/07/01 (Looking SE)

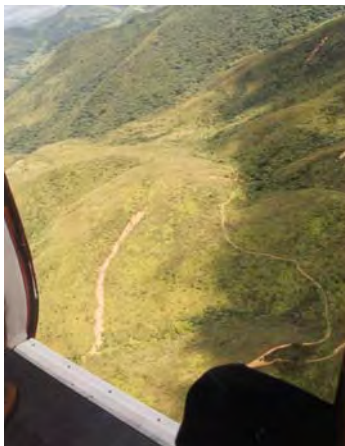


Photo. No.CH01EE_close Date 9/7/01 (Looking SE)



Photo. No.P7070011 Date 7/9/01 (Looking W)

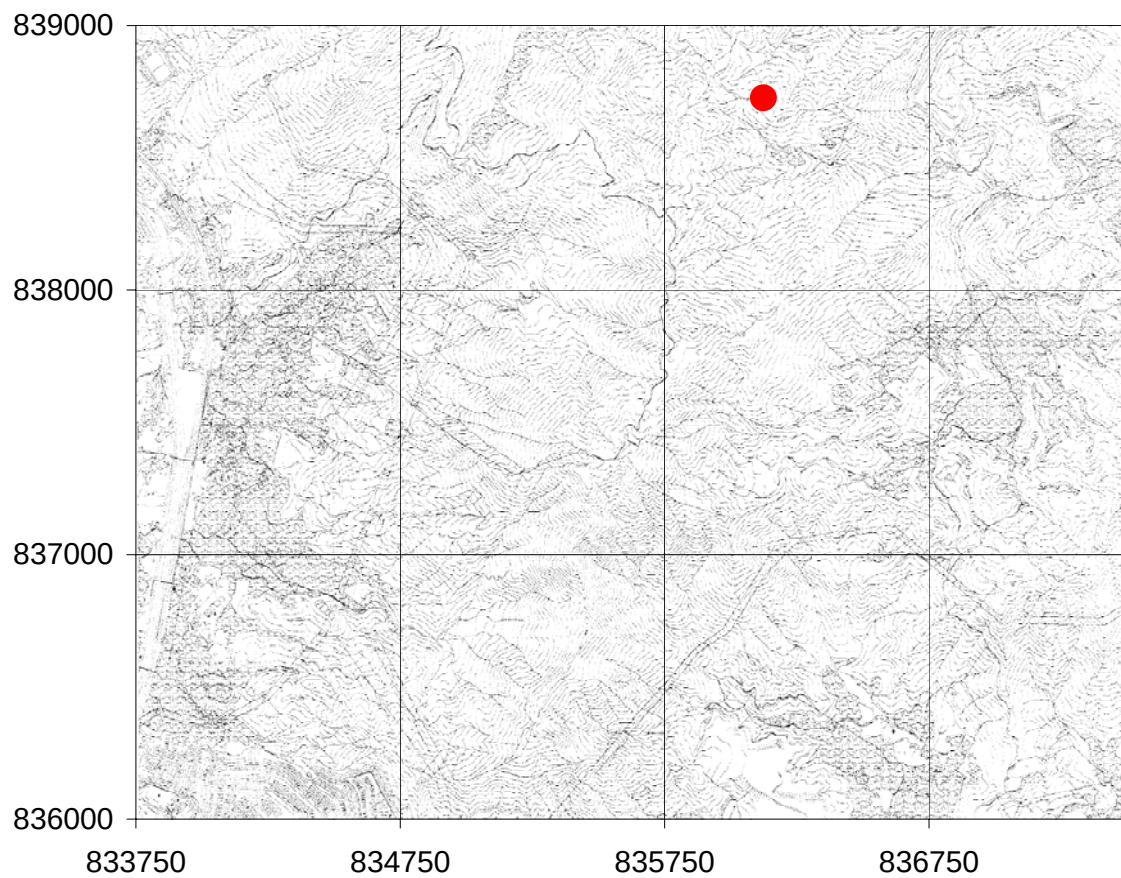


Photo. No.P7070013 Date 7/9/01 (Looking N)

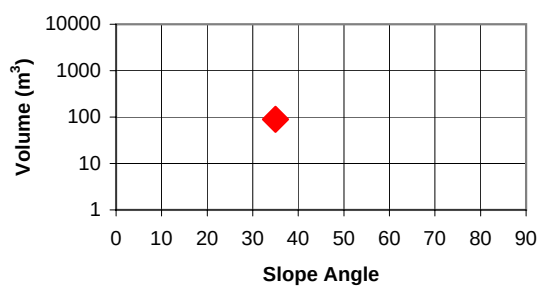


Landslide Location Plan

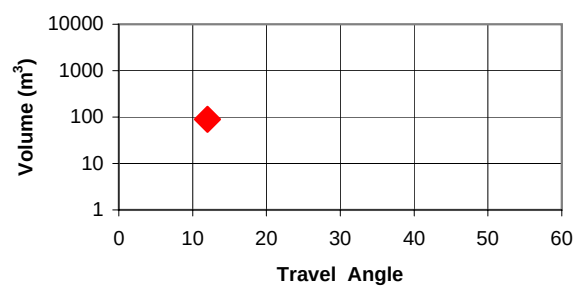
01EE



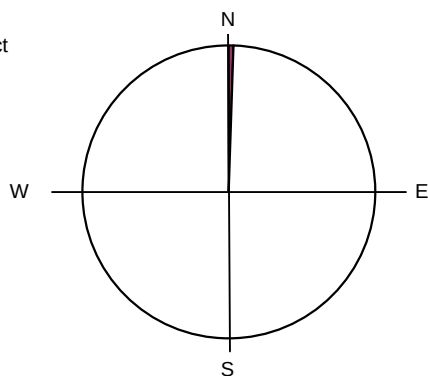
Comparison of Landslide Source Volume and Slope Angle



Comparison of Landslide Source Volume and Estimated Travel Angle



Slope Aspect



Material Exposed in Scarp

